# THE AMERICAN GAS LIGHT JOURNAL

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*The Public Lighting Tables of the American Meter Company will be found in the page advertisement of that Company.*


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[OFFICIAL NOTICE.]

## Twenty-fourth Annual Meeting, Western Gas Association.

WESTERN GAS ASSOCIATION,
OFFICE OF THE SECRETARY,
NEW ALBANY, IND., April 8, 1901.

To the Members of the Western Gas Association: The 24th annual meeting of the Western Gas Association will be held in Louisville, Ky., May 15, 16 and 17, 1901, and will be called to order by the President, Mr. Ira C. Copley, of Aurora, Ills., at 9:30 A.M., Wednesday, May 15th.

The Galt House has been selected as headquarters, and the meetings will be held in a suitable room contained therein. The following rates have been obtained: European plan, $1.50 to $2 per day; American plan, $3 per day. Rooms with bath, from 50 cents to $2 per day, according to location. The Louisville Hotel offers similar rates. Sealbach's Hotel, European plan, $1 per day.

The Executive Committee has arranged for the presentation of the following papers:

"Recuperative Furnaces of To-day: Directions for Operating and Testing;" by Mr. W. E. Steinwedell, Belleville, Ills.

"Six Months' Experience in the Operation of Inclined Retorts;" by Mr. A. H. Barret, Louisville, Ky.

"Method of Keeping Prepayment Meter Accounts;" by Mr. Wm. Ernest Bell, St. Louis, Mo.

"Gas Association Libraries;" by Mr. F. H. Shelton, Phila., Pa.

"A Stormy Experience;" by Mr. John Gimper, Galveston, Tex.

"Gas and Hygiene;" by Mr. James Ferrier, Columbus, Ga.

"Wrinkle Department;" edited by Mr. F. H. Shelton, Phila., Pa.

"A "Short Topic" on the subject of "Isolated Generators for Bench Firing;" by Mr. Henry L. Doherty, Denver, Col.

Reports will be received from the Conference Committees on "Municipal Ownership" and the "National Bureau of Advertising."

The Western Passenger Association (from points in Eastern and trans-Missouri territories), the Central Passenger Association, the Trunk Line Association and the Southeastern Passenger Association have granted rates of 1 and ⅓ fare for the round trip, conditional on 100 certificates being presented to the Secretary for indorsement. The territory embraced by the above Associations includes all States east of the Mississippi river, except New England. The following States and Territories west of the Mississippi river are in the territory covered by the Railway Association granting reductions: North Dakota, South Dakota, Minnesota, Wisconsin, Iowa, Missouri, Nebraska, Kansas, Oklahoma, Indian Territory, Colorado and Utah.

All persons attending the meeting will purchase a first-class ticket at starting point, paying full fare for same, obtaining from agent a certificate stating that the person whose signature appears on same has purchased, at full tariff fare, 1 first class ticket to Louisville, which certificate, after it has been signed by the Secretary of the Association, and a representative of the above Passenger Associations, will entitle the purchaser to a ⅓ rate returning home.

Apply to ticket agent at least 30 minutes before departure of train. All station agents do not have a supply of certificates, but they can be obtained by request, if notification is made in time. Persons outside the territory embraced by Passenger Associations mentioned above should purchase a ticket to nearest point within one of said Association, and from there purchase a ticket to Louisville, obtaining a certificate, which will, if properly indorsed in Louisville, entitle them to ⅓ fare returning to place from which certificate was obtained, provided it is indorsed by a representative of the Passenger Associations (who will be present at the meeting) and the undersigned.

Those who live in Western Passenger Association territory should consult local agent several days in advance of purchasing ticket to Louisville, in order to reach an understanding with the different roads as to the junction point via which they will make rates applicable. Some local agents sell to junction points, where delegates can re-buy to destination. Certificates held by wives of the delegates attending the meeting will be honored in the same manner as those held by the delegates themselves.

Tickets can be purchased under the above arrangement on or after May 11th, and are good, returning from Louisville, on or before May 21st.

A banquet, to be provided by the Association, will be held Thurs-


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SMITHSONIAN DEPOSIT.

day evening, May 16, at the Galt House, tickets for which will be sold at $5 each. As it is necessary that arrangements for this banquet should be perfected at an early date, it is requested that those who expect to attend the meeting will notify the Secretary as early as possible of the number of tickets they will require. While the ladies will not participate in the banquet, ample arrangements will be made for their entertainment.

The calling of the roll this year will be omitted. Every member attending will deposit, upon entering the meeting room, a special card which will be furnished him, and upon which he will write his name and address.

For the first time we are to meet in a city where the local gas company has in successful operation inclined retorts, which fact alone will be instructive and add to the interest of the meeting.

All queries sent to the Secretary for the Question Box will be assigned, in advance of the meeting, to members for answer.

The Secretary will be pleased to answer any communication pertaining to the meeting, and will mail blank applications to any who desire to become members of the Association. JAS. W. DUNBAR, Secretary.

## BRIEFLY TOLD.

OBITUARY NOTE.—MR. HERMAN SCHUMM.—"Mr. Herman Schumm, Managing and Technical Director of the German parent 'Otto' Company (the 'Gasmotorenfabrik-Deutz,' near Cologne, Germany), and a prominent engineer, died, after a lingering illness, on the 3d inst., at his residence on the border of the river Rhine, in Bonn. Mr. Schumm was born, in 1841, at Stuttgart, and received his technical education at the polytechnic schools of Augsburg, Stuttgart and Berlin. His first engagement was in 1861, with the machine works in Carlsruhe (building locomotives and a general line of machinery), where he remained the best part of the following 10 years, not counting a short intermission, during which he acted as instructor of the drawing and mechanical classes of the Industrial College, and another public institute, of the city of Basle, Switzerland. In 1871 he connected himself with the machine works of Charles Beer, Jemmapes, Belgium, building at that time engines for river boats and mining machinery. He spent some years subsequently as manager of a large iron foundry in Strassburg; but in the year 1876, the year of the birth of the 'Otto' gas engine, he enlisted his services in the interests of that invention and remained identified with it for nearly 25 years, or up to the time of his death. He was one of the corps of engineers commissioned by Dr. Otto to work out the mechanical details and settle on the standard design of his invention previous to its being placed on the market. How well this task was carried out is attested by the fact that all subsequent designs of gas engines have either taken some or all of the original elements of design or detail into their own engines. Towards the close of 1877 Mr. Schumm came to America (Philadelphia) and assisted for a short period in the pioneer work that was going on at that time in this country regarding the introduction of gas for power use. When he returned to the parent house in Deutz, 1½ years later, he left his name as a memento of his activity on these shores in the old and well-known firm of Schleicher, Schumm & Co, which underwent no change, regardless of the changes in its partners, until its incorporation, in 1894, under the public surname of 'The Otto Gas Engine Works.' Shortly after his return to Europe Mr. Schumm took up his residence in Paris, and built there extensive works for the Parisian 'Otto' Company and for other affiliated enterprises, remaining in charge of such management for some 3 years. In 1882 he was appointed technical director of the parent Company in Deutz, and under his supervision were since developed, not only the largest gas engines for furnace and producer gas now made, but also a great variety of designs adapted for many odd uses and purposes, such as are not offered by any single machine works in other lines. This entailed constant additions to grounds, buildings and machinery, which, with the other work became a severe tax on his ability and capacity for sustained labor. In 1893 Mr. Schumm made another visit to this country on business connected with the Philadelphia works. When away from business cares Mr. Schumm was of liberal disposition and jovial temperament and made many friends; but in business he was as exacting against himself as he was against others, and thereby brought the standard of accomplishment of his co-workers and his employees up to an exceptionally high order. This earned for him admiration and high esteem from those who were thrown in contact with him through business and had an opportunity to judge of the results of his activity at the Deutz works. Mr. Schumm leaves a widow and four children.—S."

[Continued from Page 533.]

## PROCEEDINGS, SEVENTEENTH ANNUAL MEETING, OHIO GAS LIGHT ASSOCIATION.

HELD IN DAYTON, O., MARCH 20 AND 21, 1901.

FIRST DAY, MARCH 20—AFTERNOON SESSION.

The President introduced Mr. B. W. Perkins, of South Bend, Ind., Editor of the

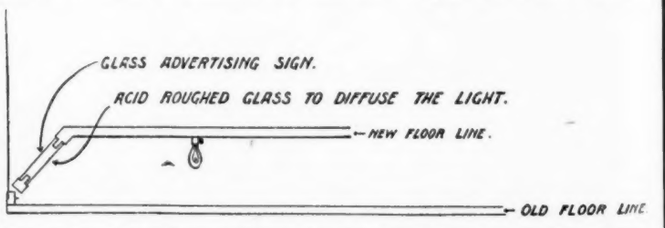
NOVELTY ADVERTISING DEPARTMENT,

who read the following "Novelties" submitted by various members:

The following items have been received in response to requests for advertising novelties:

Mr. H. L. Doherty says: "At Madison, Wis., we have a cement walk in front of our office, in which we have set, in letters of blue cement, various advertising matter. We also put electric sign lamps in certain show windows in town, worded, "buy gas stoves," and "use gas for fuel." At the head of every news column in Madison we keep the one line advertisement the year around, "cook with gas." We are thinking about mounting a gas stove on a wagon, supplied with gas from cylinders under pressure. I expect to insert a heavy piece of sidewalk glass in the middle of the sidewalk with an advertisement painted on the under side of it, and have electric lights beneath it to attract people's attention after dark. Assweating and washing windows soon destroy gold lettering, I am now using gold lettered signs on a strip of plate glass, hung inside of the window, and an inch or more away. A sign of this sort never sweats, can be taken down when the window is washed, and seldom needs washing itself; but when it does it can be washed more carefully than the washing of the window is apt to be done.

"In Denver we are planning to raise the floor of our exhibition windows about 10 inches above the bottom of the plate glass. The floor will extend to within a few inches of the plate glass, and from the




front edge of this floor, to the bottom of the plate glass, will be a sash inclined at an angle of about 25° from vertical. The glass in this sign will bear some suitable advertisement, and directly back of the pane on which the lettering will appear will be acid roughed glass, and the whole will be illuminated with electric lamps under the floor of the window.

"We have just ordered a repeating phonograph, which we intend to run every day, during the payment of gas bills, on the inside of our office, and on other days it will be suspended over the door of our office so the sound will get out on the street. This phonograph will be run with an electric motor, and will deliver a lecture on the merits of gas stoves. It will repeat the same thing over and over, all day long. I have also borrowed some woman's kitchen, who had a gas stove, and sent a demonstrator there to give an exhibition to the women of the neighborhood that our solicitors could induce to attend. I expect also to use attractive photographs on glass for advertising signs."

Mr. J. H. Maxon, of Gallipolis, O., has found the following effective:

"A lady has been here recently demonstrating the merits of mince meat. We furnished her a gas stove to do the baking with. She worked in five groceries in different parts of the town. We moved the stove from place to place, furnishing everything free; the ladies who looked at the pies, etc., always noticed the stove and how well it baked. We have sold several, and have prospects of quite a number more just on the strength of this ad."

Mount Vernon, O., says: "Get every cook in your town to demand 50 cents a week more for her services in those houses where gas is not used for cooking." This suggests the idea that the cook would be a valuable ally, and that judicious advertising matter placed in such hands would not be amiss.

Mr. Donald McDonald, Louisville, Ky.: "Encourage the consumers to complain. Whenever there is anything about the stove to complain of, see that it is remedied, and, if possible, see that the cook knows how to prevent a like thing happening again. A man will put up with a

cooking stove that is unsatisfactory for a long time, but he will not persuade his neighbor to buy one, and if his cook changes homes she will insist on her new mistress getting one."

Mr. F. R. Persons, Toledo, O.: "We are doing a free installation and maintenance business, and putting up about 100 incandescent lights per day. We find the cost of maintenance is about 3 to 5 cents per month per light."

Mr. S. F. Hayward, New York: "There are only 1,000 gas works in the country that we wish to reach, consequently we have found that articles such as desk fittings, paper weights, erasers, rulers, paper cutters, etc., have been appreciated and kept, and become, to a certain extent, permanent advertisements. We believe, in the small class we desire to reach, that this plan is quite successful in the way of advertising. We are not so sure when it comes to general work and reaching large numbers. It would be too expensive; although if I were manager in a town or city for a gas company I would certainly use some of these things."

Mr. Joseph Light, Dayton, O., keeps an ad. in the papers, asking consumers to send word to the Company if their lights are at all unsatisfactory.

Mr. F. W. Stone, Ashtabula, O., uses the backs of their gas bills, on which are printed various ads. calling attention to the use of gas and coke for different purposes, etc. Attention is called to the ad. on the back by a notice on the face of the bill.

Mr. Geo. P. Knapp, Augusta, Ga.: "I sell a party a gas stove and then tell him I will pay him $1 if he will sell his neighbor a stove, and so on, adopting the chain system. This makes everybody my agent, and everybody 'yellin' for gas ranges. We have a hard people to get, but I am getting them to the tune of a couple of hundred a season."

The Rockford (Ills.) Gas Company sold sad iron heaters at 25 cents, and offered to buy them back at 30 cents from all who were not satisfied with them. None were ever returned.

Mr. H. W. Douglas, Ann Arbor, Mich.: "Believing that few of our customers understood the advantages of planked fish, and appreciating the fact that this could only be done on a gas stove, we had made a number of fish planks, sending them with a recipe and our compliments to a large number of our best customers. I think this met with fair success."

Mr. G. A. Allen, Zanesville, O., uses a blank form for yearly consumption of each consumer. The consumption of each month, the total for the year and the average monthly consumption are all put upon it. At the top of the sheet is a short circular mentioning the advantages of gas for light and fuel. He says: "It has proved the best regular thing we have struck. We get them out as soon after January 1st as possible, just when gas bills are the largest, and mail one to each consumer. The average man remembers only his December bill, and the statement brings to his notice directly the monthly average. The first year we sent out these annual statements we received many letters in reply expressing surprise that the writers' gas bills were so small."

Mr. F. H. Shelton, Philadelphia, Pa.: "We have offered prizes at times for the best treatise on 'Cooking with Gas,' say a free stove once a month for the best composition received during the month. We are great believers in lending stoves for church socials, as a matter of educating an excellent clientage."

Mr. R. M. Serrill, Atlanta, Ga., increased the sale of coke by the following novel method: A lump of coke was neatly wrapped up, tied with pink ribbon, and sent to possible customers, with a card reading as follows: "Thousands use gas coke for grate and furnace fires. Cleanest and best fuel. Remove this silk ribbon and note how clean it remains, after being tied to this sample of gas coke. Tie it to a piece of soft coal, remove it immediately, and note the condition of your hands and the ribbon. 'NUFF Sed!—Atlanta Gas Light Co." He advertised coke under the catchword of sootless fuel. The combination of pink ribbon and lump of coke was so unusual as to attract a good deal of attention.

Mr. H. L. Olds, Lincoln, Ills., says: "We will trade a gas range for almost anything in the house, in fact do anything to get a gas range in use; but we will not give them away or sell them for less than cost."

Mr. Chas. L. Printz, Little Rock, Ark., finds the circular as below both novel and effective.

"*Loss* $616,535.00.—Chief Jno. League reports that during the year 1899 the fire losses in Little Rock reached the enormous total of $616,535, among the causes of which were the following:

Burning chimneys, 29; gasoline, 4; defective flues, 17; lamp explosion, 8; defective hearth, 5; sparks on roof, 14; electric wires, 11; gas, 0. A word to the wise is sufficient."

Mr. C. T. Mason, of Chicago, sends the following novel coke advertisement, seen in the Fostoria Gas Company's office: "A glass box, about 12 inches square and 18 deep is filled with coke, and lighted by means of a red electric light placed in the center. Over this box is an appropriate coke sign." He also describes another novelty that, while not particularly an advertiser, is nevertheless worth mentioning. A book called the complaint book is placed on a convenient desk, with pencil, etc., and by means of a sign near by, the consumer is requested to make his complaint thereon, and leave orders for new tips, etc.

The Waukegan (Ills.) Gas Company gives away a tin match box, with appropriate lettering, which calls attention to the fact that a match is all the kindling required for a gas range.

The Grand Rapids (Mich.) Gas Company uses a pad calendar. In the memorandum lines of the first 17 days of every month are very cleverly worded reminders of discounts, price of gas, entrance of employees to consumers' premises, etc.

In South Bend, Ind., our novelties comprise a large kite to the string of which is attached a 30 foot banner properly lettered. The kite is flown in different parts of town, and always attracts attention. We put ranges in the windows of drug stores, or in any store where they would attract attention. The greater the difference between the goods sold by the store and stoves displayed, the better the ad. We have given away puzzles and "Mother Goose" books to the children, also lettered fans which were distributed at summer gatherings and which people kept. Large fence and blank wall signs have been used with success. During the warm weather we always like to have a stove in our wagon, whether it is to be put up or not. We are considering the use of a stereopticon for use on the public streets in evenings, using interesting pictures in which will be sandwiched gas stove and light ads., and views of kitchens equipped with gas ranges. In short we adopt any successful advertising to the the gas business. Numerous novelties could be used in the gas business. Cheap caps, such as clothiers give away, tin cups, with ad. printed in the bottom, photograph buttons and printing gas ads. on grocers' paper bags; the last two have been used by some gas companies. Some of the printed matter given the public could be printed on calico, etc. I regret very much that the list of novelties is not greater, and hope that the few I have been able to bring to your notice will serve as means of bringing out others.

*Discussion.*

Continuing, Mr. Perkins said—Since these "novelties" were handed in this gas stove bank (exhibiting same) was sent to me. I suppose it is intended that gas companies shall give them away. It is lettered on top, "Save your money and buy a gas stove."

Mr. Butterworth—I think this is one of the most practical and useful departments that has come to my notice for some years, and I am proud of the Ohio Association for having gotten it up. I think we can get many very, very valuable hints from it. The scheme followed by Mr. Serrill, of Atlanta, Ga., of wrapping up a lump of coke and tying the parcel with pink ribbon, reminds me that Mr. Finn, of Boston, in selling the coke of the New England Coke and Gas Company, in Boston, sacks it in paper bags marked "Smokeless Fuel." Customers buy it at a fancy price and are very glad to get it as sold by the grocers all over town.

The President—Editor Perkins was unable to get as many prompt responses as we expected. Many of the members who had some splendid ideas did not like to send them in, fearing the practices were too old. As the department will undoubtedly be continued, I take this opportunity to say you should send in everything you have, no matter how old it is, where you saw it, or where it came from. Send it in. This will certainly furnish a very interesting and instructive department, and we should all do all in our power to assist the Editor in bringing out the different modes of advertising.

Mr. Persons—I am sorry Mr. Doherty is not here to take up the question of a national bureau of advertising. I think he was named as a special committee last year to investigate the subject of establishing such a bureau. Nearly all the firms that advertise regularly do so through regular advertising bureaus. They buy up the space in a large number of papers. I do not see any reason why in this State we cannot establish a bureau with central headquarters, which would furnish advertising cuts and everything like that, thus reducing the cost to the individual companies very materially. We all know that we can obtain a large quantity of space in local papers much cheaper proportionately than we can a small space. I think there is no man here who disputes the advisability of newspaper advertising. I presume you all believe in it and all do it. Mr. Doherty had some scheme in that line which I think, if it could be carried out, would prove a great

advantage to the individual gas companies. Possibly it may be well to have a committee appointed to work it up with the different gas companies throughout the State. With a very small per cent. of what is now being put out for advertisements, we could by union secure better results, get better advertisements, cuts and everything of that kind, which would be very attractive and very effective. The fact of the matter is, we don't pay enough of attention to advertising. We buy the space, put in an advertisement and forget it. If the ads. were changed frequently or if they were embellished with an attractive cut to draw attention to it, new advertising matter being used as often as was deemed necessary, we would secure much better results from our advertising than as that is now done. I strongly hoped that something in that line could be done at this meeting.

Gen. Harbison—I am very glad to know that something is being done in the advertising line. I have experimented some in that direction myself. One of the first means adopted was to have a good front window to my office and there display various kinds of stoves, ranges and apparatus generally, lighting them six evenings in the week until 10 o'clock. The light attracted attention and people came and looked at the display. I tried newspaper and street car advertising with a variety of cards, changed once a week in each car. I was not satisfied with the results, though they were good. A few years ago I learned of a man who had served two years under Mr. Littlehales (whom so many of us know well) at Syracuse, N. Y. He had been employed in making a house-to-house canvass throughout the city with wonderfully gratifying results. I secured his services, and put him at work to make a house to house canvass, giving him a certificate of the Gas Company to show he was authorized to represent us and that there need not be any question in the minds of those he called upon as to the truth of his statements when he said that he came from the Gas Company's office. At every house he made a memorandum as to whether they had any sort of gas stove for cooking or heating or any kind of gas fires, how they were being served by the Company in a general way, etc. He made his report to the Secretary every day, and the reports were kept on file. That was in 1899. In 1900 he started in anew covering the same territory, and on such additional streets where pipes had been laid that had not been piped in 1899. He carried with him this memorandum of the visit of the previous year. We covered the city in that way very thoroughly and with very satisfactory results. I do not think it necessary to continue it now, perhaps, for a period of 2 or 3 years, because we so very thoroughly covered the ground within so recent a period.

Mr. Butterworth—I want to say a word, following up Mr. Persons' remarks on behalf of Mr. Doherty's advertising scheme.

Mr. Persons—It originated in this Association and then was taken up by the American Association.

Mr. Butterworth—It contemplated more than was suggested by Mr. Persons, in that it contemplated the co-operation of the gas companies of the country, entering into an arrangement for the purpose of advertising gas for cooking purposes in the leading magazines and periodicals of the country. For instance, "Century," "Harper's," "Munsey s," "Ladies' Home Journal," "McClure's," etc., inserting a page ad. in one of them each month, going into the merits of cooking with gas, the payments to be made by contributions from the gas companies of the country. That was one of the matters he had in view He presented it in an immature form at the last meeting of this Association, at which Gen. Hickenlooper was present. The General, I am sure, through a misapprehension of the purposes and objects of Mr. Doherty's plan, threw cold water upon it, and Mr. Doherty withdrew his motion for the establishment of such a bureau for the time being I hope something can be done further at this meeting to carry out the enterprise.

Mr. Persons—This matter originated last year, and I thought Mr. Doherty was appointed a committee of one to take up the question of advertising in this State. That is my recollection of the disposition of the matter.

The President—He was to take up the matter with other Associations and secure their co-operation.

Mr. Persons—Ohio is large enough and has enough gas companies to take this policy up on joint account. There are enough gas companies in this State to form a bureau of the kind suggested. Booklets could be gotten out in large quantities, setting forth the advantages of cooking by gas, and other forms of advertising could be employed, the companies entering into the scheme receiving the benefit from the work of such a bureau. The best advertisers we know of use them. We should be guided as other business men are guided. We should be guided by what other people are doing in the way of advertising. There is not a large firm doing business to day which is not advertising in the local papers to a very large extent, but about all the advertising the gas companies are doing as a rule, is simply enough to keep the local publisher on their side, so that he will not jump on them. If this form of advertising is good for drygoods and grocery houses and other lines of business, it must certainly be good for the gas business.

The President—Mr. Doherty has submitted a report, but we have postponed presenting it until to-morrow in the hope that he will be here. I would like to have some of the members take up some of these advertising schemes in detail, or take up the matter as a whole.

Mr. Persons—I think Mr. F. D. Moses, of Trenton, N. J., who wrote me that he expected to be here to morrow, is doing a lot of advertising, and will be able to give us many good suggestions. I want to say that soliciting by canvassers is not only a common thing now, but that a majority of the companies who employ canvassers keep a card system. They assign a man to a certain district and he is not allowed to go out of it. After he has called upon the people in that district some 2 or 3 times and has failed to make a sale, his cards are given to another canvasser, who, if he calls once or twice and fails to make a sale, is followed by another canvasser. One party I know of went so far as to send seven canvassers to call on one lady before he succeeded in making a sale. It only goes to prove that what might be good in one town would not be good in another. What one canvasser can do another cannot; again, what one canvasser cannot do another one can. That is the idea I desire to advance. I might say that Mr. Serrill is going to start a new scheme this year. He is now in charge at Mt. Vernon, New York (I see you have him registered at Atlanta), the headquarters of the Westchester Lighting Company, and has been there for some time. He sends a canvasser out now with one photograph of a stove, who calls at a house. If the lady doesn't want to buy, or would like to postpone the purchase, or would like to discuss it with the members of her family, the canvasser informs her that he has only the one photograph, which is the fact, because he is only given one; but if she wishes to show it to the family he will loan it to her. Then he goes back to the office and gets another one. The lady takes it as quite a condescension on his part, and if she doesn't buy a stove within a day or two, she goes to the office to return the photograph. Later on another canvasser calls upon her.

Mr. J. R. Lynn—This idea of a number of canvassers working in a sort of a relay reminds me that a friend of mine told me the other day that he took out an insurance policy to get rid of the agent (laughter).

On motion of Mr. McIlhenny a vote of thanks was tendered to Mr. B. W. Perkins for the very able manner in which he edited the Novelty Advertising Department and which will prove of so much assistance to the Ohio Association.

### Re-Election of Editor Perkins.

On motion of Mr. Persons, Mr. Perkins was re-elected Editor of the Novelty Advertising Department for another year.

### Back to the Question Box.

The President—We will now take up Question No. 2, which is:

"How much can a company afford to pay to get a gas range installed?"

Mr. Chollar—I would suggest they can afford to pay enough to get it installed.

Mr. J. T. Lynn—That is about what I was going to say. Local conditions have a great deal to do with it. A company selling gas at $1 per 1,000 probably could not afford to pay as much as if the rate were $1.15 or $1.20. I think they can pay just enough to get the range installed. It doesn't make any difference how much—that is, as to the price of the range.

Mr. Printz—It costs us on an average $10 to install a stove, for the number we install during the different seasons.

Gen. Harbison—Do you think it is profitable?

Mr. Printz—Yes, sir.

Mr. Clapp—That is a great question with our company. I had almost come to the conclusion that I would give away ranges, but since I have heard the discussion to-day I am in doubt about it. I would like to have more information. I understand there are companies in this State and throughout the country that have given stoves away entirely to the consumers to induce them to use gas. If that is the case I would like to hear from them.

Mr. Persons—In Buffalo, N. Y., where natural gas competition has been very fierce, a great many ranges have been set at a cost of something over $20; those ranges are all in the cheaper class of houses and are not in use over 3 or 4 months in the year. Then they are taken

back to the warehouse of the Company, cleaned up and put in condition for another season's work. The entire expense of all this is something over $20. I do not know the exact figures, but they consider it profitable. Suppose it costs $30 to install a stove, I would like to know whether it is profitable or not at that price, and why it is not considered profitable to expend $30 to install a stove. Thirteen dollars for a stove, with the added cost of meter connections, etc., would bring the expenditure pretty close to $30. I would like to hear from some one whether or not it is profitable at that price.

Mr. Roper—Probably the largest deal ever made in this line was made this year in Baltimore, Md., where Mr. Moses has contracted to place 10,000 ranges within the twelvemonth. The average cost to the Company is $10 apiece, he to pipe the range from the meter, and install it ready for use at an expense to the Gas Company of $10 each. These probably are the best figures that have been made or that anybody knows of. They made this contract with Mr. Moses for the simple reason that the Trenton (N. J ) Gas Company the first year gave away ranges—I quote from memory—to the number of 1,200 the first year in a city with a population of 75,000. The next year they put out, I think, 120. Last year they started in, but as the manager said—it was a conservative town—it was no use trying; they could not put in any stoves so they gave it up. Mr. Moses finally induced them to let him take hold of it, I think in the month of June, after the average man thinks that his stove trade is over, and in 3 months he put in 2,600 ranges in a town that was conservative and had been worked to the extent that it was thought nobody could sell any more ranges. They were unsuccessful in giving them away, in fact, unsuccessful in placing them in any way, but Mr. Moses took hold of it and placed 2,600 in 3 months. On that record and from data he had obtained, he took hold of Baltimore, and up to Saturday night had sold over 1,000 ranges. I happened to be at the New England meeting where a paper [1] was read on how to sell gas. The President, after the paper was read, said he believed that newspaper advertisements were very good and yet the advertising was done at the season of the year when it should not be done. Then he turned around and said, "I would like to call on the gentleman from Trenton." Mr. Moses got up and said that he did not believe that there was any season of the year so far as the gas business was concerned. He said he was now advertising full page ads. in the papers of Baltimore, Md., and in those of Camden and Trenton, N. J., in all of which cities he was handling gas stoves. He was selling in Camden at the time, I think he stated, some 30 odd stoves a day, and proportionately in the other places. So I say it is not the season, but it is the man and the way he gets at it.

Mr. J. R Lynn—I think this question can probably be almost answered in answering Question No. 1 of the question box. I think if that first question was answered, each of us could figure out this problem to suit his own particular condition.

Mr. H. L. Olds—I am a little like Mr. Chollar. I think a company could afford to pay whatever it costs to set the range. If the expense would be $10, I should say that is what the company could afford to pay to get the range installed. I think the range should be put in regardless of cost.

The President—We will try Mr. Lynn's suggestion and submit Question No. 1 for answer. It is:

"What is the average consumption of a gas range?"

What is it in Toledo, Mr. Persons?

Mr. Persons—I really do not know. With gas at 95 cents the average bill is somewhere about $30 a year.

Mr. Clapp—In Middletown, O., at first bills of consumers using gas exclusively for cooking average about $2.50 per month. Since that I think the gas stoves are much more economical. Now I think that the average would be about $2 per month. Whether it is profitable to give away gas stoves in order to get consumers is a question I would like to hear about from various members. It seems to me that is what we were trying to get at when this other question was sprung. I would like to know if it is the sense of this meeting that it is profitable to give away gas stoves in order to get consumers?

Mr. J. T. Lynn—I think it is a matter which will vary according with the price at which gas is sold. I know in Sheboygan, Wis., the average is very low for stoves, only about 14,000 cubic feet per annum. In Port Huron, Mich., the average is about 28,000. In Sheboygan, gas is sold at $1.30 for cooking, while in Port Huron, we sell it at 80 cents; consequently the cost of manufacture and distribution is in accordance with the price. I may say that the average profit on 1,000 feet of gas would be about 80 cents, selling it at, say, $1.30, and as a stove consumes 14,000 feet a year, you can figure out how much you can afford to pay to install a gas stove. I do not think you should expect the first year to get back the cost of everything, but if you are making a good, fair interest on the money invested, I think everybody should be willing to spend money in putting in gas stoves. If the profit is 50 cents a 1,000 on the gas, and the stoves average $20 a year, one is making $10 on each stove every year, so it should be simple to figure out what it will pay to expend in putting in gas stoves.

Mr. J. R. Lynn—If he installs a stove free which costs him $15, he would have then an investment of about $30; and figuring as high as 8 per cent., he is paying $2.40 a year.

Mr. Olds—We took off a list of 100 consumers for the month of June, which showed the average bill to be $2.13; and the average bill for the month of May for the same consumers was $1.88, with gas at $1.25 net. I think a company could afford to pay whatever it costs in installing gas stoves; if it costs $10, then one can afford to pay $10 for the installation.

Mr. Roper—Some years ago when this question came up I secured data from 5 different towns, in 3 of which they had separate meters, so that they knew what the stove consumption was; the other 2 did not have separate meters. In one case, with a 16 inch oven, the average was not quite 2,000 feet per month. In another case, with an 18-inch oven, the average was about 2,400 feet per month; while in the towns where there was but one meter and where they had estimated what the light would be it ran a little higher than that. Now that may have been figured deducting light for the previous year. That does not go to prove that an 18-inch oven uses more gas than a 16-inch oven. Whenever a gas stove man talks about how much it costs to install a range, he talks about it costing $15, but when he goes to sell a range it will be $9.

Mr. Lynn—I would like to ask whether that average was for 12 months or just during the summer?

Mr. Roper—Twelve months.

Mr. Clapp—I had reference to the summer months. We have not yet come to the point where we can get gas stoves used the entire year, but simply during the summer months. I think in the larger towns and cities the average is very much lower, especially where we have a manufacturing town.

Mr. Lynn—I think the gentleman is mistaken with reference to the large and small towns. I think the average consumption in gas stoves in a large town is greater than in a small one, for the simple reason that we have a great many more houses heated with furnaces and other appliances and in smaller towns you do not find so many furnaces. You do not find so many appliances, radiators and registers for heating the kitchen in the smaller towns as you do in the large towns, consequently they use their gas stoves in the winter months, while in the smaller places, where they depend solely on the cook stove to heat the kitchen, they do not use the gas stove in winter.

Mr. Clapp—I had reference to the summer months.

Mr. Roper—I do not wish to take up too much time talking, but I would like to say that gas companies and gas managers are themselves responsible for gas being sold as fuel during the summer months only, for the simple reason that in 9 out of every 10 advertisements you read you find that the gas company commences along in the spring advertising gas as a summer fuel, and gas for summer cooking. They will insist upon putting the word "summer" in their advertisements. I had an experience about 3 years ago when Mr. Wanamaker took hold of Philadelphia. I happened to be there when he wrote up the first advertisement. He brought it down and asked me what I thought of it? I said it was all right except that the word "summer" should be stricken out. After half a day's argument with the advertising man, he said he guessed he knew his business a good deal better than I did, with the result that the word "summer" went in. You should advertise gas for fuel, not for summer fuel. As Mr. Moses said in the New England meeting, "I would talk gas for fuel and gas for cooking, and advertise its advantages over coal, oil and everything else." Talk gas as a fuel, as against all other kinds of fuel.

Mr. Stone—It seems to me the question of installing gas stoves comes down to the proposition whether you can get your money back or not. All of us are interested in the financial feature of the question. The way I figure it out is about this: Suppose a gas stove costs $12 and the installation $18, then you have a total investment of $30 in putting in the stove. We give the man a gas stove. The average life of a gas range, we will say, is about 4 years; that would make the cost of depreciation on the stove $3, and the interest on your investment at 6 per cent. would be $1.80, making a total cost of your investment $4.80. Assuming that you make a profit of 30 cents per 1,000 on the gas, you would

1. "Selling Gas," by C. J. R. Humphreys; JOURNAL, March 18, p. 402.

have to sell 62,000 feet of gas on that gas range before you came out even—before you made any profit for your company at all, not taking into consideration the extra cost of making the service, of clerical help, keeping the books, of reading the meter or anything of that kind, but just simply the actual cost, interest on investment and depreciation in stove.

Mr. Lynn—I would like to ask the gentleman to explain to me what gas company is running on a margin of 30 cents on the thousand?

Mr. Stone—I am not saying anyone is. I simply say if anyone is then he will have to sell that amount in order to come out even. You can fix the margin to suit yourself. It does not make and difference to me what margin you fix, I am simply speaking of the process by which it is to be figured out.

Mr. Lynn—All I have to say is, if the gentleman is paying $12 for a gas range that will only last 4 years, he is getting stuck. (Applause.)

Mr. Schwarm—Regarding the life of a gas range. About a year ago our company went into the subject of gas ranges pretty thoroughly. We considered the question which is now before this meeting as to the advisability of giving away ranges. About 5 years ago the company was using at Lorain about 250 ranges, putting them out free of charge, and if you would make a canvass of that town to-day, you would not find 50 in first-class condition, or that you could sell for $1.50 apiece. Anything that you give away the people do not take care of. Now, if these ranges are in such shape that the people cannot use them again, we get them to come down to the office and sell them a new range at cost without much trouble. We discussed the matter on all sides about a year ago and decided not to offer any free ranges at all, but offer them on a cash payment of $3 and $1 per month, connecting them up free of charge, selling the range at what it cost us. We have been getting along in good shape on that basis. Another matter I would like to suggest in this connection. I think we place too much stress on the range question alone. I think we ought to take up the question of hot plates as well as ranges. The ordinary hot plate, 3 holes, will burn as much gas as an ordinary range. If you go into any family among the great majority of the gas consumers, you will find if they have a hot plate that that hot plate is consuming gas 365 days in the year. If it is not going for cooking then it is going in the basement, the gas is used for washing, ironing and other purposes that your range is adapted to. I think we place entirely too much stress on gas ranges The agitation ought to be along the general line of advancement for securing the use of all devices which will increase the consumption of gas rather than along one particular line.

Gen. Harbison—Our Hartford Gas Company has become known very rapidly as approaching the point of being a benevolent institution. To help along and encourage that idea I have, within a couple of years, done some pretty efficient work with the local builders. Quite a large number of very respectable apartment buildings have been constructed in our city, and I have advised the owners in every case to install gas appliances for doing the work in every flat in the building, and to do it at his expense. Then he can show the tenement flat to a would-be occupant, saying there is no expense here for the use of gas as fuel. There is gas for everything you may want to do; there is no coal to bring in, nor ashes to carry out. Under these circumstances the would-be tenant will rent the flat much more readily, and the Company is not called upon to make any investment in order to secure the use of gas for fuel. The owner does it at his own expense. That is some of the good advice we have been giving away. Within two years more than 100 ranges have been so placed in Hartford. Within a year my attention has been called to a gas heater—its name I cannot give you at this time—but some of you may recollect it when I allude to it, which you place in the basement, connecting it with the gas and water pipes. When you want water upstairs out of the faucet you open the latter and very quickly you have hot water. Turning on the water turns on the gas, and shutting off the faucet shuts off the gas. Quite a number of them have been put into use in our city and in every case they have worked admirably. A circular was sent to me the other day giving me the names of the gentlemen who had them installed in their houses. That sort of work is effectual, but the putting in of gas ranges without any expense to the consumer is something in which I do not believe. I do not believe in double service, since that calls for two meters to measure the gas used for illuminating and for domestic purposes. It adds to the expense of the investment and the clerical hire including meter readers, office force, etc. I do not believe it is necessary. I think what has been said by the gentleman about other gas appliances than gas ranges is very much to the point. I think we should cover all of the details which come in the broad scope of the use of gas for domestic purposes. We should advise architects and builders and those proposing to build to put in their places appliances for the use of gas throughout all seasons of the year; have them arrange the buildings so that it will not be necessary to run a cook stove in the winter season in order to heat the kitchen. Just a single point further, Mr. President, and I am done. We should give more attention to the arrangement in the kitchen, making a personal effort to have the owner of the house put the piping in the kitchen properly. Then he will get a better class of help and increase the consumption of gas. Put it in the kitchen nicely and see if you do not have gas used as a fuel a great deal more than if you leave it simply to be put in as they choose and used when they choose. Let the owner of the building pay the cost of doing it. Charge for the gas, the piping, the labor and for making the connections. Do not charge for any extras or anything of that kind and you will have no trouble in getting the bill paid. For one year, out of more than 4,000 gas ranges installed, we have had no complaints, no hesitancy about paying the bills, and have not lost any of our consumers because we asked them to pay the cost of doing this work.

The Secretary—I would like to ask Mr. Stone if the 4 years which he speaks of as the average life of a gas range is based on actual results obtained by him?

Mr. Stone—I do not do anything in the gas range business. That is, I do not sell nor handle them. I base my figures on the results that have been given me by other parties, so far as the 4 years are concerned. If you wish you can put it 5 years. I simply figured the matter in that way to give an idea of the manner of calculating it. You can assume in that calculation that the average life of a gas range is anything you may desire. I simply gave those figures for the purpose of showing the method of calculation. I think our experience has been about 5 years, but I put it 4, because it figured a little bit easier at 4 years.

Gen. Harbison—I believe the average life of a gas range depends upon two things; first, its quality; second, as to whether the party had it given him or whether he had to pay for it. If it was given to him by the company, then the range receives no decent care. That is the information which comes to me from those who have been doing it. If they buy it the range is their own property and it is to their interest to take care of it. These are the two main things upon which the life of the gas range depends.

Mr. J. R. Lynn—We have in our town a gas range that was given away twice in 12 years and it still gives good results.

Mr. Roper—The first 25 stoves put out in Rockford, Ills., were given away by my father-in law 25 years ago. They were the old Providence retort stoves, and some of them are in use yet, and are in fairly good condition.

On motion, the Association then adjourned to reconvene at 9:30 A.M., March 21st.

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SECOND DAY, MARCH 21—MORNING SESSION.

The Association reconvened pursuant to adjournment. The President announced that the first order of business was the

REPORT OF COMMITTEE ON PRESIDENT'S ADDRESS,

which was read by Mr. C. W. Andrews as follows:

To the Members of the Ohio Gas Light Association—Gentlemen: The committee to whom your President's annual address was referred, beg leave to present the following report:

We concur in the pleasing reports in regard to the continued use of gas not only for general purposes, but also in what until recently was a lost field, namely, street lighting. The suggestion concerning a combination for the purchase of supplies and disposal of by-products is worthy of consideration by companies so situated as to make it possible.

The Novelty Advertising and Wrinkle departments are sure to prove of the utmost benefit to our members, and should be continued.

In the earlier years of our Association we were not in shape financially to go to the expense of publication of our proceedings in permanent form; but the time has now arrived, in the opinion of your committee, to take up the matter and make arrangements for the publication of the proceedings of the past meetings. We, therefore, recommend that the executive committee make suitable arrangements for the undertaking, and that a volume be gotten under way.

This Association has long since outgrown the State of its birth and now enrolls its new members from all parts of the country. There seems to be a particularly inviting field for new members in the States mentioned in our President's address, and we concur in his suggestion that, in the near future, the committee on place of meeting carefully consider the advisability of holding it outside this State, as conven-

tions in these sections would no doubt add largely to our membership and efficiency as an Association.

The very efficient and successful manner in which our Secretary has conducted the arrangements of this meeting fully deserves the praise which is given it.

In conclusion, we desire to express our approval of suggestions and our commendation of the spirit of confidence in the future usefulness of our Association, and the continued success of our profession, which run through the address.

Respectfully submitted,

C. W. ANDREWS,
JOHN D. MCILHENNY, } Committee.
J. H. MAXON,

On motion, the report was received and placed on file.

Mr. F. Persons then read the

REPORT OF COMMITTEE ON NEXT PLACE OF MEETING.

To the Members of the Ohio Gas Light Association—Gentlemen: We, your committee on place of next meeting, beg leave to report as follows:

We have received with great pleasure urgent invitations from Toledo, Indianapolis, Cincinnati and Columbus.

We have discussed with various members of the Association as to the advisability of going out of the State. The general opinion seems to prevail that we are large enough in membership outside of the State to warrant meeting in a neighboring State. We, therefore, recommend Indianapolis as the place for our next meeting. If it is the sense of this Association that we hold the meeting in this State, we recommend Toledo as second choice.

We are not unmindful of the urgent invitations to go to Cincinnati or Columbus, but having recently held meetings in both cities it seems advisable to move about and into new pastures.

Respectfully submitted,

F. R. PERSONS,
B. W. PERKINS, } Committee.
E. D. ABBOTT,

Mr. Persons—In this connection perhaps it would be well to read extracts from a letter received from Mr. H. L. Doherty, of Denver, Col. He undoubtedly will be elected President for the ensuing year, and perhaps his wishes in the matter should have some bearing on the decision of this question. He says:

"I do not think we are yet ready to hold meetings outside the State, except when some well defined and direct benefit will result. I am, however, in favor of a policy which will gradually increase the scope of the Association's usefulness. The Ohio members will not be injured by the growth of the Association, but will be greatly benefited. We must, however, proceed on evolutionary lines rather than revolutionary lines. The Association has already outgrown a State organization, and has become more or less of a national character. It seems wise to me that this growth should be encouraged, and yet the interests of the Ohio gas men in the Association's affairs must not be curtailed even in the slightest degree."

It looks to me as if we had gotten to a time when we can afford to go outside the limits of the State and take in new members and broaden our scope.

Mr. Chollar moved that the report of the committee recommending Indianapolis as their first choice for next place of meeting be adopted. And the motion was seconded.

The President—Mr. Butterworth, I would like to hear from you.

Mr. Butterworth—I wish the committee on next place of meeting would read the invitation to the members of the Association submitted by me.

Mr. Persons—The invitation fro ı Mr. Butterworth, which I will be very glad to read, is as follows:

DAYTON, O., March 20, 1901.

To the Committee on Next Place of Meeting—Gentlemen: On behalf of the Columbus Gas Company and the Columbus Board of Trade, I cordially invite and urge you to name Columbus as the next place of meeting.

Columbus is not only the birthplace and logical home of the Association, but it is very centrally located with reference to our membership, can be easily and quickly reached by many direct lines of railway from the various parts of Ohio and the surrounding States, and has the best of hotel facilities. I feel sure that a majority of our members would prefer Columbus to any other city as the next place of meeting. Furthermore, I think I can promise the members, if you should come to Columbus a year hence, a most interesting trip to Lancaster, where you may inspect the great gas wells of the Sugar Grove field and watch the operations of the 1,000-horse power gas engine and pump described to you by Mr. Eysenbach this morning.

Very respectfully, IRVIN BUTTERWORTH.

The President—We would like to have more discussion on this matter so that we may all act advisedly through understanding the wishes of the members present.

Mr. McIlhenny—It seems to me the Ohio Gas Light Association will retain its greatest usefulness in not endeavoring to be too large. I should think it would be a mistake for it to attempt to branch out too much. I think it would be very advisable and very well for it to encourage those engaged in the gas business in adjacent States to become members of the Association, so that it would not involve the Association in going farther than to an adjacent State, but for it to attempt to go beyond that, I think, would be a mistake and hamper the Association in its work. I think in this case it might be very well, and something of a variety, to go to Indianapolis. I do not believe it is much more difficult to reach Indianapolis from most of the cities in Ohio than it would be to reach some of the extreme cities within the State of Ohio, and as there are quite a number of gas companies—especially the smaller ones—throughout Indiana the managers of those companies might be induced to join. I doubt not that quite a number of the managers and superintendents of those companies who attend no conventions would probably join an Association of this kind which meets nearby. The usefulness of the Ohio Gas Light Association would be thus extended, and while understanding that it is not the idea for the Association to branch out, or to become desirous of becoming a National Association, yet I think it would be advisable to try the experiment of going to Indianapolis.

Mr. Chollar—To bring the matter before the Association in proper form, with the consent of my second, I will withdraw my motion.

Mr. Persons—Then I move that the report of the committee be amended by inserting the words "City of Columbus" in place of the words "City of Indianapolis." I think it would please Mr. Doherty more probably if we met in Columbus, as it is his native city.

The motion was seconded and unanimously carried.

Mr. John R. Lynn then read the following

REPORT OF COMMITTEE ON MEMORIALS.

DAYTON, O, March 21st, 1901.

To the President and Members of the Ohio Gas Light Association—Gentlemen: Your Committee on Memorials would respectfully submit the following:

HENRY RANSHAW, President and Manager of the Stacey Manufacturing Company, Cincinnati, O., died January 30th, 1900.

Identified with the above named Company since 1851, Mr. Ranshaw was deeply interested in the welfare of our industry, and, while unknown to a great many of our members, possessed a place in the esteem of his acquaintances that is commendable to all.

His decease is deeply regretted, and the Association loses a member of sterling worth and intelligence.

GEORGE TREADWAY THOMPSON, that warm-hearted friend, genial companion and able practitioner, died at Denver, Col., on the night of October 1st, 1900, at the early age of 31 years.

His career has been too closely woven with the recent history of the gas industry to require comment at this time.

In the zenith of its brilliance, a great light has been extinguished, and yet we know that its reflection will extend on and on to remove the shadows for a future generation of gas engineers and managers.

Words cannot express the true loss sustained by us in his departure. We simply leave him to your appreciative memories, and thank a wise Omnipotence that his brief life and character were given mankind.

HERMAN WILKIEMEYER, a pioneer of this Association, and one of its former Presidents, died at Cincinnati, November 20th, 1900, at the age of 48 years.

Always one of our most active and industrious members, ready at all times to aid in making our sessions useful and instructive, his genial face will be greatly missed at our annual gatherings.

His successful business career, excellent citizenship and high personal character combined to make a man beloved and esteemed by his fellowmen.

*Whereas*, It has pleased the great Author of man's coming and going to remove from our midst these friends; be it

*Resolved*, That this Association expresses its deep regret at the irreparable loss sustained; and be it further

*Resolved*, That we extend our heartfelt sympathy to their respective families and intimate friends; that this report be embodied in the

record of this Association, and that a copy thereof be transmitted to the immediate family of each of the above deceased members.

B. E. Chollar, John R. Lynn, Jas. E. Stacey, } Committee.

On motion of Mr. Butterworth, the report of the committee on memorials was adopted by a standing vote.

The President introduced Mr. George W. Barnes, of Pittsburg, Pa., who read the following paper on

## THE PROPORTIONAL STATION METER.

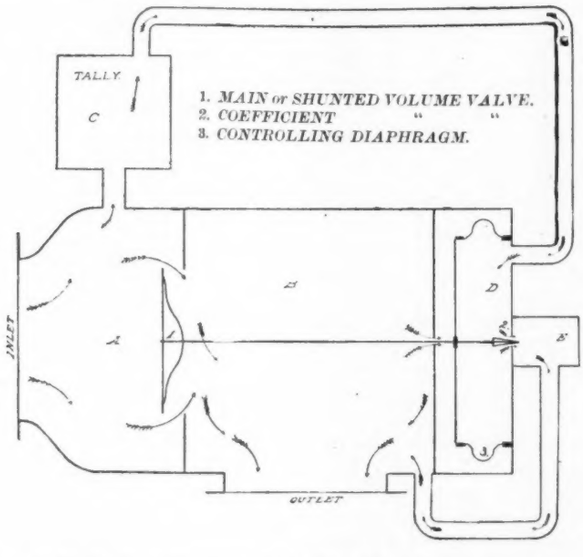
Gentlemen of the Ohio Gas Light Association: In bringing this subject before the convention it is my purpose to open a line for discussion rather than give a lengthy paper on the "Proportional Meter."

A proportional meter is rather an old than a new machine, as we find, as early as 1863, records of a device known as "An improvement in water meters," described "as a meter in which the fluid is divided into two streams—one a relatively large, the other a small stream—in such a manner as to allow the small stream to pass through the meter and the large stream around the meter." Hence a proportional meter as known to day. This was followed by many others, but with no marked success until a demand for a meter of this kind was created by the natural gas companies; then the matter was taken up to fill this demand.

Then was found the difficulties that had been encountered in all earlier experiments, to wit: The maintaining of a constant ratio of drop, or absorption, through the proportionate openings. The difficulty was finally overcome through long and discouraging experiments, which possibly some of us experienced, in part at least.

This, however, brings us to the proportional meter of to-day, and the consideration of its adaptability to the duties of a station meter.

Here let me briefly describe the operation of the proportional meter as we have it to day:




In the drawing, *A* represents the fluid inlet. The delivery chamber *B*, is separated from the inlet, having an opening controlled by direct inlet valve 1; this valve is mounted on a stem which slides longitudinally and moves with the flow of the fluid current to close the inlet opening. To the end of the rod is secured a diaphragm 3, consisting of the usual center plate and flexible annulus, secured in the casing. *C* is a tally meter connected to the inlet *A*. From the tally meter the fluid which has been measured therein passes into chamber *D*. This chamber communicates with delivery chamber *B*, by an opening, which is controlled by valve 2, mounted on the same stem with valve 1.

The area of the openings for the meter delivery valve is made such that its ratio to the area of the opening of the direct inlet valve shall be equal to the ratio of the determined capacity of the tally meter to the volume of fluid passing through the direct delivery valve, so that under all degrees of opening of the direct delivery valve and the meter delivery valve the proportionate delivery of the meter is constantly equalled to the pre-determined fraction of the supply volume with which the capacity of the tally meter accords.

The effective area of diaphragm 3, which constitutes what is termed a low pressure plate, is greater than the effective area of the inlet valve 1, which in this form is both a valve and a pressure plate.

The operation is as follows: The fluid at *A* passes through tally meter to chamber *D*, until sufficient pressure has accumulated therein to actuate valve rod so as to move valve 1 into an open position; this rod at the same time opening the meter delivery valve 2. The fluid then passes through the direct admission valve into the delivery chamber *B*, and also by the way of tally meter and meter delivery valve 2 into same chamber, from which it passes into the outlet.

To maintain the required proportion of flow of fluid through the direct admission valve and the meter delivery valve, it is necessary that there shall be a constant ratio of drop. This ratio of drop in pressure is obtained and maintained by means of high pressure plate constituted by valve 1 itself, which is opposed by low pressure plate 3, of a greater area, which is acted on by less pressure, namely, that which is passed through the tally meter. These two pressure plates, acting in opposition to each other, force the valve 1 to a position where equilibrium is established between the pressures acting upon the pressure plates.

If the amount of the absorption of the pressure by the tally meter varies, it is evident that a corresponding variation of pressure will occur in the diaphragm chamber *D*, thus changing the position of the direct inlet valve and meter delivery valve to correspond thereto.

The difference in the pressures, acting on the two plates, is, of course, due to the absorption of pressure by the tally meter. If the absorption of the tally meter is equal to 1 inch water column, then the difference in the pressure acting on the high pressure plate and the pressure acting on the low pressure plate will be 1 inch. In this case the drop through the direct inlet valve will be 2 inches, and the drop through the meter delivery valve 1 inch, and if the relative area of opening of the small valve is 1 per cent., the flow through these valves, being proportioned to their area and the square root of the drop through them, the volume per inch of area passing through the direct inlet would be 1.414 times the volume per square inch of area passing through the meter at delivery valve, since the square root of two equals 1.414, and the square root of one equals 1.

If the absorption of the tally meter should increase to, say, 2 inches water column, the delivery of volume remaining the same, the pressure on the low pressure plate or diaphragm would be reduced, and the pressure acting on the high pressure plate would remain the same, the proportional valves would then be forced to a more nearly closed position until the pressure accumulated, an equilibrium was again established, and the pressure acting on the high pressure plate will be equal to 4 inches, and that on the low pressure plate equal to 2 inches. In this case, the drop through the direct inlet valve is 4 inches and the drop through the meter delivery valve 2 inches. The square root 4 being equal to 2, and the square root of 2 being equal to 1.414; two divided by 1.414, equals 1.414, the same ratio as before.

This, as you will see, leaves the question of accuracy to two features of the machine, the tally meter and the parts free from obstruction by foreign matter.

This, gentlemen, I hope will bring before you the subject in a manner to call forth your expressions, which done I leave it with you with my thanks for your attention to the reading.

### *Discussion.*

The President invited Mr. Chollar to start the discussion.

Mr. Chollar—Some of you know much more about the meter than I do, although we have three ourselves that have been delivered and tested but are not yet in practical use. On the arrival of the meters we attempted a test, and, for want of a better method connected them in tandem or in series. We bolted the three meters direct together and found by this arrangement there was no correspondence whatever. The meters all measured differently, and in connecting the different meters in different order, there seemed to be no system whatever to it. They registered any way and every way. After experimenting with them several days without success, we became considerably disgusted and thought they were no good. We sent for Mr. Wylie. He came out and I think was a little stumped himself the first day—at least he didn't accomplish much the first day; but shortly after—I think on the second day—he separated the meters, putting the second meter probably 4 or 5 feet away from the first and the third one probably 15 feet away. That allowed a full, free and even flow from one meter to another, which we did not have in the first arrangement. By this plan we found that the first meter and the last meter corresponded almost perfectly. There was so little error that it might have been overlooked entirely. They were practically the same. The middle meter did not

correspond perfectly, but it was near enough for all practical purposes, and it might have been used without a station meter there nicely. By changing the meters in different combinations, the meter that was put first in the series and the last meter agreed perfectly, so we are fully satisfied with them, think they are all right and will answer all practical purposes nicely, provided they are kept clean. They will require a little care in cleaning out the dirt caused by naphthaline or something of that kind. I doubt if they will require any more care than an ordinary station meter, because I have seen the latter sort of meter filled up with naphthaline inside the drum which would prevent it from registering accurately. We have been well enough satisfied with the meters to put them into practical use and they will be in operation in a few days. We fully believe they are all right.

Mr. J. T. Lynn—Did you try these proportional station meters on different flows? Our experience with proportional station meters in the natural gas business goes to show that they vary very much in the amount of the flow. That is, taking a meter with a capacity of 10,000 cubic feet an hour, if you run it up to that capacity you will get a pretty accurate measurement, but if you are passing 1,000 or 1,500 feet you do not get good results.

Mr. Chollar—We tested these meters at 10 or 15 different rates, possibly more, and had no such differences at all. They were accurate at all rates practically. That is, they agreed.

Mr. Lynn—Did you make a test with another meter?

Mr. Chollar—We tested them in tandem which I think was better than testing them with another meter.

Mr. Lynn—Of course, improvements may have been made on them since the test to which I refer. It was 2 or 3 years ago when I had experience with them.

Mr. Chollar—When they are adjusted and properly tested, I think you will find them satisfactory. If a meter should be made and not adjusted for a low rate or a high rate it might not register correctly. But when a meter is properly adjusted for all rates, I think it will register correctly on different rates.

Mr. J. R. Lynn—I would like to ask Mr. Barnes, if a meter made to take care of a high rate of consumption will register correctly on what we might call a minimum volume per hour?

Mr. Barnes—A good deal would depend on instructions that the meter maker would get in building his meter. The method of testing all large machines is to test them for the work you suppose they will do. When you get down to, say, 2,000 or 1,000 feet per hour, with a proportional station meter you are approaching on house meter volumes. While it could be tested down that low, I don't believe any proportional meter builders make a habit of such testing, unless by special request. They could be made so as to be adjusted to a very low volume. It requires considerable work, but it could be done. Then that will make your meter accurate between the two extremes.

Mr. Stone—How low a pressure is a proportional meter supposed to work on, and what would be probably the maximum drop that would be necessary to make it work accurately.

Mr. J. R. Lynn—We had experience with two proportional meters, the results differing widely in each case, yet I think the matter might be explained. That is, it was between the relief holder and the holder which fed the city, and I presume the gas passed through at a pressure somewhere between 6 and 8 inches water column. I graduated the holder and found the meter registration was as nearly perfect as we could expect with another meter. We placed one at Bellevue, and I think Mr. McMillan had quite a little difficulty with it. Instead of placing it on the inlet of the holder we placed it on the outlet, so that it measured the output of the plant. I think in that case the pressure was 3 inches, water column. I think it registered about 30 per cent. of the gas that passed the meter.

Mr. McMillan—It varied. Sometimes it would register under. I remember in one or two instances it registered probably two or three times the output, so that we could not rely upon it in any way, shape or form.

Mr. Andrews—I would like to hear an answer to Mr. Stone's question, if Mr. Barnes can reply to it.

Mr. Barnes—The drop varies as to the volume passed. The total drop of the meter, as you will see by the paper, is double that of the tally meter. You put a tally meter on, say, for instance, using any building meter, it is simply a question of getting an accurate tally for that purpose, taking that into consideration only. The total drop of the meter is always as I before suggested, double that of the tally. If your coefficient or measured volume is one-half of 1 per cent., or 1/200, and you are passing 100,000 feet an hour, then you take 1/200 of that. Then the absorption of your tally meter at that volume, through the tally meter, equals one-half the drop of the total meter, so that it was comparable on that basis with what passes through the ordinary house meter. To come down accurately, you can pass 150,000 feet of gas through a proportional station meter on 1 inch of drop; that is the maximum drop for that flow of gas. Then possibly if you were passing through the same machine say 50,000 feet, your drop would be 4/10. The variation is between these two, and as you get below 50,000 the drop decreases until you reach the minimum of your tally meter drop.

Mr. Eysenbach—I would like to ask how they test these meters? I have heard that they have a special means or usual method of testing them. Do you know anything about that, Mr. Barnes?

Mr. Barnes—You refer to the testing by the builders, or to a test in your works?

Mr. Eysenbach—A test in the works.

Mr. Barnes—I would suggest in that case a test similar to the one we use; that is, by a flow meter. It would require rather a long explanation to tell you how the flow meter was built, but I can tell you the operation of it very briefly—where you want an absolute test it is the only method. The method is this: We have a large drum, say 48 inches in diameter, with an interior drum of about half that diameter. The interior drum is perforated with as many small holes as we can get in the sheet. The outer one has calibrated holes, giving a certain flow with a certain pressure. For instance, take 1 with a 1¼ inch calibrated hole through a $\frac{1}{16}$ thickness of plate, with the thermometer at 70 and the barometer at 30, you will get exactly 1 foot per second with a 4-inch pressure. Now the only adjustment necessary to maintain that is the adjustment of pressure to suit your atmospheric conditions. For instance, we find that the thermometer is 60 and the barometer 29.3, then we figure the exact amount of pressure to be required to pass this flow of 1 foot per second through the orifice; then we start a constant flow through the meter, which also passes through the flow meter against the atmosphere. The flow would then be exactly 100 feet in 100 seconds. We gauge the hand of the meter with a stop watch. We stop the watch when it has exactly reached 100 feet. If it has required 105 seconds for the 100 feet to pass, then the error is 5 per cent.; if it has passed in 95 seconds, the error is the other way 5 per cent. Anything further, Mr. Eysenbach?

Mr. Eysenbach—What did you say the pressure was?

Mr. Barnes—The barometer at 30 and the thermometer at 70. Then we regulate the pressure to suit the atmospheric conditions. That pressure is controlled by a very sensitive governor. It is held constant after we have determined the pressure. For instance, we may find one day the pressure required is 3.95 inches of water, and we set our regulator at that and maintain it constantly. Possibly the next day it will require 4 5 inches of water, and so on.

Mr. J. T. Lynn—How do you test these meter provers? What system do you use to prove them?

Mr. Barnes—I intended to state that. The method is this. We have a very accurate prover which we know, by both government tests and our own, to be a very accurate 100 foot ordinary prover. We make this drum as I described before, put it on the prover, and for days (I do not know how long a time, but a very competent man who took charge of that found the result obtained that way was absolutely correct) knew that it took through this orifice just 1 second for 1 foot of air to pass.

Mr. Lynn—At what pressure?

Mr. Barnes—Four inches. Now, just to carry that a little farther. There are enough of these holes to carry on the test as far as you wish. These holes are stopped perfectly tight with plugs and each one represents just so much; 100 feet in 100 seconds. Then you take out one plug and allow that to run. That is 3,600 feet per hour. They test that, then take out another, and go right up by stages 3,600 feet at a time. The usual method is to start at 3,600 feet, then go back for a low test to just one half of it, or what is called a "half-hole." When you get down to 200 or 300 feet an hour, you are below the volume for which the meter was intended to work, and it is liable to be anything at all. Unless specially requested, as I stated before, I do not think any proportional station meter builder would run a meter down below about 1/20 its capacity.

Mr. J. T. Lynn—My experience of course has been principally with natural gas where the consumption varies. For instance, in the water works of Detroit the consumption there would vary. They had 3 boilers, 2 large and 1 small. The large ones were about 250-horse power, the small one about 50-horse. We found, when they were running the 50-horse power boiler, they were getting gas for about nothing—that the proportional station meter was registering hardly anything, but when they had full load on we were getting about what was due us. I have had experience with about 20 or 30 proportional

station meters, and never found one of them that I thought was satisfactory.

Mr. Schwarm—I would like to ask if about three-fourths of the natural gas sold to the large manufacturers at Pittsburg is not measured through proportional station meters?

Mr. Barnes—Every foot of natural gas sold in Pittsburg to day, and for the last 10 years, is measured in that way. Am I not correct, Mr. Holmes, in that statement?

Mr. Holmes—Yes; I should think about 10 years.

Mr. Schwarm—They have practically done away with all the large, old style meters.

Mr. Barnes—There is not one in use in Pittsburg.

Mr. Lynn—That does not coincide with the statement made by Mr. Robert Young. He said to me not 3 months ago, in talking about proportional station meters, that he had not yet struck one that was correct. They were about as near as anything that could be obtained. I do not want to "knock" the proportional station meters. I simply state what he said.

Mr. Barnes—I understand that, Mr. Lynn; but the question I answered was as to whether they were using proportional station meters entirely at Pittsburg in the measurement of gas. I said they were.

On motion of Mr. Butterworth a vote of thanks was passed to Mr. Barnes for his paper.

The Secretary then read the following

REPORT OF COMMITTEE ON NATIONAL ADVERTISING BUREAU.

DENVER, COL., March 5th, 1901.

Mr. President and Members of the Ohio Gas Light Association—Gentlemen: Your Committee on establishing a national advertising bureau beg to report that the matter was presented to the Western Gas Association, at their May convention in Chicago, and Mr. E. G. Pratt, of Des Moines, Ia., was appointed as the representative of that Association. The matter was also presented to the American Gas Light Association, at their October convention in Denver, and Mr. F. D. Moses, of Trenton, N. J., was appointed as the representative of that Association. The committee has never had a meeting owing to the present unfortunate geographical situation of its members, but a meeting will be attempted just prior to the Western gas convention at Louisville.

The scheme meets with the unqualified approval of many prominent gas men, and new converts are continually being heard from. It was found impossible to put the matter on an active basis for the present season's work, and during the present season nothing more can be done than to continue the investigation and popularize the movement.

Arrangements have been made with certain advertising houses to obtain from them statistics bearing on this subject. Several of the larger gas companies are going to extend the amount of their local newspaper advertising, and others will inaugurate an advertising campaign for this season for the first time. These results are partially due to the agitation of this national advertising bureau, and the good results of more general advertising of gas cannot but benefit the whole gas business, even though the advertising is confined to the local papers. Many of these papers find their way into the hands of the consumers of other cities, and communication between these and other cities cannot but help the gas business elsewhere. The more advertising talent is devoted to pushing the gas business the better will this class of advertising become. Many remarkable examples can be cited of the efficacy of proper advertising. The results obtained last season from the advertising of blue flame oil stoves by the Standard Oil Company were nothing short of sensational. If clever advertising will sell an article of no greater merit than a blue flame oil stove, how much more effective would it be for gas stoves? The average revenue from gas stoves exceeds $20 per annum, and it has been found highly profitable by the manufacturers of other articles for household use to expend to exceed $100,000 per annum to promote sales of commodities whose consumption per household cannot exceed $3 per annum and sometimes less than $1. Soap, baking powders and patent medicines are amongst the most marked examples of the results that are obtained from lavish yet judicious advertising.

The use of gas for fuel purposes can only be made universal by creating a universal want for it, and all the people cannot be reached except by fetching ads. so placed and designed that they will be read.

It is estimated by experts in advertising that not less than $50,000 would be required for one season's advertising, such as would bring results which would leave no further question of the profitableness of the venture. This amount looks large in the aggregate, but would prove insignificant to each gas company if a sufficient number will participate. Success in this movement will only be possible by the active support of those favorable to the scheme in convincing the skeptics.

Respectfully submitted, HENRY L. DOHERTY, Committee.

On motion of Mr. Hayward, the report was received, ordered filed and the committee continued. The motion also included a vote of thanks to Mr. Doherty for his dilligent efforts in the matter.

AGAIN THE QUESTION BOX.

The President—We will now take up Question No. 15, which is as follows:

"Can a by-product coke oven plant be successfully operated in an Ohio town of over 100,000 population?"

I will call on Mr. Butterworth.

Mr. Butterworth—I think it would depend somewhat on the local conditions and the coke market at that particular place; but I should think ordinarily it would be.

The President called on Mr. Eysenbach, who said he thought the larger the town the better.

Mr. Andrews—A plant is being constructed in Hamilton, O., but as it is not completed I am unable to say what the results will be. I should judge, however, as Mr. Butterworth said, that local conditions would govern. The question of a market for by-products is what would govern as to the advisability of putting in such a plant. If coke could be sold at a good figure, as well as the other by-products, there is no reason why it should not be a paying venture.

Mr. Coombs—The question relates to a place having a population of 100,000 people. Near Youngstown a by-product coke oven is running in a town of about 10,000 people, and I understand it is a success.

Mr. J. R. Lynn—I suppose you could find coke ovens running in smaller places than that, but the purport of the question is, whetner they would be advantageous to one doing a gas business.

Mr. Coombs—Of course, the question of conducting a by-product coke oven in connection with the gas business is another matter.

Mr. Holmes, responding to the call of the President, said—I do not see why a by-product coke oven in a city of 100,000 people should not pay very well. I understand that the gas from a by product coke oven is practically "velvet." The coke is usually readily sold, and a city with a population of 100,000 people usually has a good many good houses. If it is a natural gas town, you could figure about 20,000 connections, calculating about 5 people to each house, so that if you had only 50 per cent. of all there would be 10,000 connections, and if you could sell your gas to 10,000 people you would certainly have a very nice revenue from it, and the revenue from your by-products would be a very nice thing for any gas company. So that I believe in a city of 100,000 population it would be a very good scheme financially.

Mr. J. R. Lynn—Going into the coke business you bump against people who are already in that line who have established a commercial trade. It might be all right, for those who had the money to put into a place of that kind to run a by-product business, but I doubt very much whether it would be practicable for a gas company to take it up.

Mr. Holmes—Selling the coke would be a very easy thing, for I know of a great many coke companies who sell their product very readily. Of course, you have your competition from the large coke makers like Messrs. Frick and Carnegie. We do not now have any competition from Mr. Frick, but there is always room for a small producer, for he sells his coke at just a little less than the large producer and takes particular pains to demonstrate how much better his coke is than the coke of the big fellow. If he becomes too obstreperous through selling too much coke, the big fellow buys him out and he gets a pretty good price for his plant. So that there is probably no risk at all in going into the business; and gas companies, if they should go into the business in a proper way, would have no trouble, I think, in making it a success. If they arranged to sell their coke as well as their gas, and managed the practice in the proper way, there would be practically no risk attached to it at all.

Mr. J. R. Lynn—I would like to hear from Mr. Andrew Carnegie on this proposition, but I am pained to know that he is conspicuous by his absence.

Mr. J. T. Lynn—I do not think selling coke would cut any figure at all in this matter. If anybody in a city of 100,000 inhabitants wants to go into the business, the main consideration is a question of location and condition. The matter of securing coal at a sufficiently low figure is a very important question. He could get rid of his by-products all right, but the very important question is, whether he is located convenient to the coal fields.

Mr. Persons—He might move the town to the coal fields.

Mr. Lynn—If he could move the town into some convenient place in West Virginia he would be all right.

The President—Question No. 14 is as follows:

"What is the best roof for a retort house? If of slate, how fasten it?"

I will call on Mr. Butterworth.

Mr. Butterworth—I remember answering that question before in this Association, but my advice does not seem to have been followed. I do not know whether or not Gen. Harbison's advice—which he says he gives away—is received any more favorably than mine. (Laughter.) I would put on a board and felt roof covered with gravel, one of which sort we have had in Columbus for some years, and it has caused us no trouble whatever. It is a cheap, inexpensive roof, does good service, lasts long and does not corrode. It is high enough above our benches so that it will not get afire.

The President—That answers the first part of the question; but in case you have a slate roof, how are you to fasten the slates?

Mr. Butterworth—You won't have to use slate, if you follow the advice just given.

Mr. Schwarm—I used slate, fastening it with copper nails, put in from the top and bent around. They have proved very satisfactory. We never have a bit of trouble with it; and it is water tight.

Mr. Somerville—Copper nailing does not answer from my knowledge as well as does lead wire. I had an experience on this subject some years ago, when I used lead wire about ¼ inch thick; it comes in reels something like small, lead pipe. You can take off a piece, cut it the required length, put a head on it, make it straight and then twist it around the rafter. That is the best thing I ever got for the purpose of fastening slate on a retort roof. We have had no trouble since it was tried, and it has lasted several years—I cannot tell how many. Not one has given away. It is easily mended and is handy.

Mr. Andrews—We have just finished putting on some roofs of Ludovici terra cotta tile. I think that is to be the coming roof for places where there is much moisture and corrosion from evaporation. It is made, as you well know, of burnt clay, in the regular form of brick, and as it has an offset which fits close above the angle iron, preventing the roofing from sliding down, all you have to fasten it down for is simply to hold it against the wind. It carries a small hole through which to run a copper wire, and fastening the latter over the angle iron makes a roof that should be practically indestructible. You can also get glass tile instead of terra cotta tiling to work right in with the other, so that the skylights can be put anywhere in the roof as desired.

Mr. Maxon—Mr. Somerville, where can that wire be obtained?

Mr. Somerville—I will ascertain and let you know.

Mr. Choliar—Did I understand Mr. Somerville to say that wire was ¼ inch thick? Isn't that a pretty thick wire with which to fasten on slate?

Mr. Somerville—I would not be sure, but think that was about its size.

Mr. Lynn—I have been raised in practically the same school as Mr. Somerville, and I may say we have always put our retort house roofs on with lead nails. I put a roof on in a Missouri town last year, using lead nails, and about the time the roof was finished one of our gentle breezes blew and half the roof went to the sidewalk. It straightened the lead nails right out. The nails, which were about $\frac{3}{16}$ of an inch thick, were fastened on the purlins through the slate. The purlins were made of angle iron, the flat part of the angle iron laying up to the roof, so that the lead nails not only came under the angle iron, but out and around and were again fastened on top. Nevertheless the wind took it off, so that I removed the whole roof, putting it on this time with copper nails.

Mr. Printz—Any of those gentle breezes come along since?

Mr. Lynn—Yes; we had high wind storms since.

Gen. Harbison—Twelve or 15 years ago I built a retort house in Hartford which has had a varied experience. We decided that the best was none too good in this as in all other matters. We bought a very superior quality of Vermont slate, 22 inches long, and put them on with a double lap. We got lead nails, about 3 inches in length and $\frac{3}{16}$ inch in diameter, with flat heads, and, with a pair of pinchers, the men wired those slates around the purlins. In 12 or 15 years of use we have never discovered a loose or a broken slate. We have tried almost every other means of attaching them to the roof, and had a great deal of trouble previous to that time in fastening the slate securely. The roof is worth looking at with a great deal of pleasure. It has proven eminently satisfactory.

Mr. Lynn—What kind of pliers did you use in fastening these nails under the purlins?

Gen. Harbison—Ordinary pinchers were used. The men could bend the nails right around the purlins which were either ¾ inch or 1 inch; it has been so many years since it was done that I do not remember the exact size. They bent them around the sharp corners. No trouble whatever.

Mr. Lynn—Did I understand that you used an inch purlin for a 22 inch slate?

Gen. Harbison—I said I could not remember the size, because it was so many years ago, but the purlins were such as were put on by Messrs. Bartlett, Hayward & Company, of Baltimore, who did the iron work on the roof. They used their judgment in the dimensions of the iron work more than mine.

Mr. Stone—I asked that question for the sake of information, and I got it. I am much obliged to the Association for the diversity of opinion expressed. Our roof at Ashtabula, O., was originally put on with iron wire, but that failed. Then we used copper nails, but for some reason another part of the roof came off. It seemed to corrode. Then we tried lead nails and then the slate blew off. Now I presume we will be forced to try the advice given by Mr. Butterworth and use something like he suggests. I have about concluded to put on a wooden roof with tar and gravel, but I wanted some backing before I presented the matter to our Company.

Gen. Harbison—The question of roofs to our buildings is a very important matter. For many years we thought that nothing but a slate roof was fit to put on. In the past half dozen years, we have, from practical experience, changed our minds. We now use on our roofs, where we build or repair, corrugated iron, with asbestos covering underneath, laid on a mesh of wire, to keep the paper from sagging. No matter what the building is used for—purifying, meter, coal or any other house—not a particle of moisture drops from the roof to the floor. This paper takes it all up. I am not advertising any concern and I am not interested in any of that kind of business financially, but if any one desires information in regard to it, they can get it from the concern now known, I presume, as "The American Bridge Company." It is par excellence, the finest thing I have ever seen.

### Reference to the Entertainment Programme.

The President having announced that the National Cash Register Company had extended a formal invitation to the Association to inspect its plant, on motion of Mr. J. R. Lynn, the invitation was accepted with thanks for the courtesy.

The President also called attention to the fact that the Association had been invited to inspect the works of the Dayton Gas Light and Coke Company, during the noon recess there to have luncheon.

An adjournment to 1:30 P.M. was then ordered.

[To be Continued.]

## How to Lay Tar Macadam.

By Mr. W. C. Wingate, City Engineer, Hamilton, Ont.

"Last year our city constructed about 70,000 square yards of tar macadam roadway, costing $75,000, including curbing, which is half of the $150,000 fund that was voted on and appropriated for this purpose, leaving $75,000 more to be expended in similar work this year. Tar macadam was constructed by corporation labor and none by contract, and cost in the neighborhood of 95 cents per square yard, based on labor at 18 cents per hour and refined coal tar delivered found on board cars in Hamilton at $3.75 per barrel of 50 United States gallons. During the year 1899 there were about 4 miles of this class of pavement laid by corporation labor, and costing not quite 80 cents per square yard, but this was based on labor at 15 cents per hour and coal tar at $2.60 per barrel. The stone used is of a hard bastard limestone, quarried within the city limits and with an average haul of 1½ miles, costs about $1.15 per cubic yard for the hand broken stone, and 95 cents for the machine broken or crushed stone delivered upon the site.

"The advantages claimed for this pavement are that it is free from dust, easily swept compared with plain macadam, and, owing to the tar mixture, causing a complete adhesion to the stone, making it impervious to water, and thereby holding the pavement in a permanent position as originally laid, and no moving or rolling of stone as often experienced in a plain macadam roadway. I might mention also that there is no wear to the top dressing, as it is calculated that the latter will soon either peel off after evaporation sets in, or crumble away, leaving the large stones as a wearing surface. The dresing is merely intended to be evenly spread over the tar macadam and well rolled in with a heavy steam roller, and, as before stated, making the surface compact and close and impervious to water. With reference to the durability or lasting qualities of this class of pavement, I do not feel

that I am yet in a position to say definitely, owing to the short time it has been laid; but I have every reason to believe that the same will prove durable, fairly clean and free from from dust, easily swept, and will require to be repaired only every third year on the principal streets where the traffic is heaviest, and on residential streets, where the traffic is light, every fourth or possibly fifth year, by spreading a new coating 2 inches thick of tarred stone with dressing on the full width of roadway, and at a cost not to exceed 25 cents per square yard. This, you will observe, divided by three years, would be 8⅓ cents per square yard annually for the principal traveled streets, and for the residential streets from 5 to 6¼ cents per square yard. In this connection, it might be of some use to quote you a letter that I addressed to one of our Canadian cities in reply to four questions asked by them as follows:

"'1. We have practically adopted tar macadam roadways, and spent in 1900 something like $75,000 in that class of work, and will continue to lay that class of pavement this year to the extent of $75,000 more, a by-law having been passed for $150,000 to cover these two years.

"'2. We are well satisfied with it and feel quite sure that we have discovered the proper pavement, when you come to consider the low first cost, and its wearing qualities being equal to a higher priced pavement.

"'3. I can recommend it for the principal streets of your city, especially for———and———streets, and further that it will prove suitable for a pavement along the railway track.

"'4. As to the system of drainage, we depend altogether on the gulley drains at the side to carry off the water, the surface of tar macadam, being impervious, prevents any water getting through the pavement to the foundation.'

"The first tar macadam laid by the city of Hamilton was laid in the year 1880, a little over 20 years ago, on Mulberry street, one block of about 400 feet, by the Hamilton Gas Light Company's people, and although this pavement is not in a first-class condition to day, an expenditure of 25 cents per square yard would make it nearly equal to a new roadway. There has been little or no expense on this pavement during all that time. The second tar macadam was laid in 1891, on West avenue, of about three blocks, or 1,200 feet, 22 feet in width between curbs, one of our principal residential streets, but the traffic was fairly light until the year 1896, when a large building, the Collegiate Institute, was constructed, necessitating the carrying of much heavy material over this street, and it was surprising the way the tar macadam stood the wear, the repairs of which have been only nominal, being a few holes that were patched up new, making a pavement as good as formerly. These two latter pavements were laid in a most primitive way, and not to be compared to the manner in which we are doing the work now under the revised specifications; but notwithstanding the inferior work at the time, it is proving to be an economical roadway and has been the cause of our taking up the question of better pavement and the adoption of tar macadam. A third pavement with a somewhat better specification of tar macadam roadway was also laid in the year 1893 by the Hamilton Gas Light Company's people, with a 10-year guarantee for maintenance of same, on King William and John streets, two principal streets near the heart of the city, over which much heavy traffic passes, for a total distance of 4 block, or say 1,600 feet, for the sum of $1.75 per square yard. This pavement had little or no repair until the year 1899, when an arrangement was made with the Gas Light Company, and the city was directed to make the necessary repairs and charge to them, the same having been completed over half of the distance and costing 31 cents per square yard; which, distributed over 6 years, from 1893 to 1899, would be 3½ cents per year.

"In this connection it might be well for me to mention that many deputations from various cities throughout the United States have visited us during the past 2 years on inspection trips for the purpose of seeing for themselves this pavement as laid on our streets, and so far as I can ascertain they have all been favorably impressed, and I have heard from several stating that they had concluded to adopt tar macadam in their own cities.

"I am aware that tar macadam is not a new thing, as it was used years ago in the old country with more or less success, but in the States it has generally proved a failure, particularly so in Washington, where it was tried and failed in the year 1871. Very recent cases have been tried in the State of New York after parties had visited us and tried to do as we had done, but I have learned that it was a partial failure, and upon request I sent a man from here to help them out of the difficulty the best he could, which he succeeded in doing.

"These failures are caused by not having the proper knowledge pertaining to the tar mixing, which is essentially a job that must be left to the discretion of the man in charge, as it is quite difficult to fix any hard and fast rule, as so much depends upon the quality of the tar, the temperature while heating, the dryness of the stone and the quantity of pitch. Then, too, it is absolutely necessary to have hard, porous rock which is found in the limestone. With the use of broken granite for a tar macadam roadway one would have very little success, owing to granite being close grained that it will not absorb the tar, unless thoroughly dried and baked on hot plates, which makes it expensive."

## The Russian Coal Industry.

*Engineering* says reports for some time have been spread abroad about the likelihood of the Ural mining and metallurgical industry being greatly assisted in its further development by the import of Siberian coal. Some experiments with coking Siberian coal have been going on at a copper smelting establishment at Tagil—the only coke ovens in the Ural—and the results have been entirely satisfactory. The Siberian coals used were from Tsudschenka, and the yield was 86 per cent., the percentage of ashes in the coke 10 per cent., and that of sulphur 0.65 per cent. New coke ovens are likely to be substituted for the present ones. At Ekibastus, in the Government of Orenburg, coals suitable for coking have been found in sufficient quantities to insure a continuous and rational working; but it seems questionable whether the distance from the Ural mining districts is not too great to allow of them being used there. At Tscheljabinsk the price would be 25 kopeks per pood (62 poods equal 1 ton). Within the Ural district, on the western side, 21,690,620 poods of coal were got during the year 1899, besides 500,000 poods of anthracite at Jegorschinsk. Up till 1895 the total had not exceeded 15,000,000 poods, but rose that year suddenly to 20,000,000 poods. In the kingdom of Poland the production of coal in the year 1899 in the Dombroeraer basin amounted to 242,488,012 poods of various descriptions of coal, which shows a decrease of 7,179,748 poods, as compared with the previous year. In Southern Russia strenuous efforts are again being made to increase the output of coal. A large new syndicate of foreign capitalists intend working coal deposits in the Donetz basin, with a contemplated annual output of 50,000,000 poods. For this purpose a Russian engineer has been commissioned to undertake a number of borings in the Bachmut district in the Government of Tekaterioroslav.

## ITEMS OF INTEREST FROM VARIOUS LOCALITIES.

MR. EDWARD I. FROST and associates have secured control of the properties and franchises of the Salisbury (N. C.) Gas and Electric Company. It is proposed to rebuild the plant (anything done to it will be in the nature of betterment), to make some main extensions and to reduce the selling rate. The Directors are: E. I. Frost, J. S. Henderson, L. S. Overman, G. R. Sheldon and G. H. Walbridge. Mr. Frost is to be President and Manager of the Company.

AT the annual meeting of the shareholders in the Princeton (N. J.) Gas Light Company the Directors chosen were: Messrs. E. Howe, J. H. Brewer, J. E. Burke, E. C. Osborn and William Libby. The Company's increase in sendout for the year, as against its output for the corresponding twelvemonth, showed a percentage gain amounting to 16 per cent.

THE companies formerly known to corporate fame, as the Standard Gas Company, of North Tonawanda; the Tonawanda Gas Light Company, and the Tonawanda Lighting Company, all of Tonawanda, N. Y., have been consolidated. The Directors of the concern are: Messrs. F. Wende, Geo. P. Smith, H. S. Wende, J. W. Fisher and E. R. Ford. The concern is capitalized in $200,000; its main office is to be in Buffalo, N. Y.; its corporate life is put at 90 years; and it is privileged to operate in Amherst, Tonawanda and Buffalo, in Erie county; and in Pendleton, Wheatfield and North Tonawanda, Niagara county, N. Y.

IT is reported that Mr. Emerson McMillin, having heretofore newly capitalized several old companies, now proposes to amalgamate a few of "the several."

THE proprietors of the Lawrence (Mass.) Gas Company propose, under the power granted them some weeks ago, to put a good supply of gas into the adjoining district of Andover. Agent Humphreys has mapped out a system of main laying in Andover that has received the approval of the authorities.

MR. BENJAMIN F. FURY, Secretary of the Martinsburg (West Va.) Gas Company, died the afternoon of the 3d inst. He was in his 72d year.

MR. P. T. CALDWELL, since 1887 Secretary of the Youngstown (O.) Gas Company, has resigned that position. His successor is Mr. S. C. Rodgers, of New York. The employees of the Company presented Mr. Caldwell with a handsome gold headed walking stick and a serviceable pair of gold spectacles as tokens of their regard, shortly after they heard that their respected chief was about to retire from active business.

AT the organization meeting of the Cohoes (N. Y.) Gas Light Company the following officers were elected: President and Treasurer, William E. Thorn; Secretary and Superintendent, David H. Van Auken; Asst. Superintendent, Chas. H. Van Auken.

"SOME days ago the Aurora (Ills) Gas Company suffered some loss through fire. The work of the local fire department, however, was so prompt and efficacious that President Copley added to his loss by presenting the fire laddies with a half century in dollars.—M."

MRS. JULIA A. PARKER, the well loved mother of Mr. F. H. Parker, Manager of the Burlington (Vt) Gas Light Company, died the morning of March 29th. She was in her 83d year.

THE franchise of the Stillwater (Minn.) Gas and Electric Light Company has been extended for a period of 30 years. The extension dates from the 19th ult.

WE are informed that the American Bridge Company has agreed to furnish the "Crown Agents" for the colonies of Great Britain, the steel work for two deck plate girder spans and that necessary for strengthening two other bridges on the Jamaica (W. I.) Government Railway.

MR. FRED. W. JACKSON, since 1887 the capable Secretary of the San Diego (Cal.) Gas and Electric Company, resigned from its service the 1st inst. His shareholdings in the Company were purchased by Mr. L. M. Arey, who also assumes the duties of Secretary.

UNDER the clever methods followed by Superintendent F. W. Stone the business of the Ashtabula (O.) Gas Company has been increased in wonderful degree. And in this connection it is only fair to remark that his efforts for bettering its condition are never hampered by his superior officers, who only want fair reasons advanced for an expenditure to be incurred.

THE Consumers Gas Company, of Reading, Pa., advises the residents of that city that it will place any type of gas range under the condition of a payment of $2 with the order and $1 per month thereafter until the agreed upon selling price is settled.

IT is understood that Mr. Edward H. Palmer and associates are bartering for control in the Geneva (N.Y.) Gas Company, which property is now owned by capitalists, residents of Portland, Me.

THE following is from the Cincinnati (O.) *Enquirer*, dated the 6th inst.: "The stockholders of the Cincinnati Gas Light and Coke Company will meet on May 6th, the time for holding the regular annual meeting, and vote on the question of increasing the capital stock of the Company from $9,500,000 to $28,000,000, for the purpose of purchasing the Cincinnati Edison Electric Company, the Jones Brothers Electric Company and the other smaller electric companies in the city. This is the way in which the consolidation of the various lighting companies will be brought about, and it is exactly in accordance with the statement made in the *Enquirer* on March 15, that the Gas Company would absorb the Edison Company and all of the smaller Companies, this procedure being decided upon as the most logical way in which to bring the several Companies all under one management. When the Directors of the Gas Company met yesterday it was short work getting matters in shape for the ratification of the stockholders. In the first place the report of the Board of Arbitrators, fixing the relative percentages of the shares in the enlarged Company awarded to the constituent Companies, was considered and approved, and recommended to the stockholders for adoption. It was then decided to present to the stockholders for ratification a plan for the change of the name of the Company to the Cincinnati Gas and Electric Company, and to increase the capital from $9,500,000 to $28,000,000, the proceeds of this increase of the stock to go to purchase the property of the other Companies. The distribution of this stock will also be made to the present stockholders of the Gas Company along the lines fixed by the Board of Arbitrators. There will be allotted to the Gas Company as its share of the new Company 68.80 per cent. of the new stock, or $19,264,000. The Cincinnati Edison Company will get 27.65 per cent., or $7,742,000 of the new stock. The Jones Brothers Electric Company will get 32.10 per cent. of $896,000 of the new stock. The Brush Electric Light Company will get 5.100 of 1 per cent., or $14,000, and the First Cincinnati Edison will get 3.10 of 1 per cent., or $84,000. It is well to explain here that the small allowances here set down for the smaller Companies is the amount that will be given the minority stockholders—that is, the stockholders outside of the stock held by the Gas Company, which is the owner of the Companies, with the exception of a small block of the stock of both. This stock allotted to the various Companies will be distributed to the present stockholders of the several Companies according to their present holdings. Thus the stockholders of the Gas Company will get two shares of new stock for every share of the old stock that they now hold, and besides this there will remain some stock which will be allotted in fractional shares in the form of scrip or else as a cash distribution. The Edison Company, according to the agreement, will have to procure the cancellation and retirement of all outstanding indebtedness against the Company, and after that the stockholders will be awarded their pro rata share of the new stock that will be turned over to the Directors of the Company as a bulk amount. The stockholders will get about three shares for one. The number of Directors of the Gas Company will be increased from 7 to 15, and the different Companies will have representatives on the Board to correspond with the percentages of valuation fixed by the arbitrators. It is generally conceded that the President of the Company will be General Hickenlooper."

THE Logansport (Ind.) offices of the Logansport and Wabash Valley Gas Company have been closed. The headquarters are now at Lafayette, Ind., as, in fact, it was determined some weeks ago they should be when the proper time arrived.

THE lease of the New Orleans (La.) Gas Light Company, to the New Orleans Lighting Company, of New Jersey, has been ratified by the shareholders of the former, according to the terms heretofore printed in the JOURNAL. The incorporators of the Jersey concern are returned as Messrs. H. B. Payson, C. F. G. Ehrmann, M. M. Butter and W. R. H. Hardingham. These are in all probability dummies, as will be shown later on when the banking house of Edward C. Jones & Co., of New York and Philadelphia, who carried out the deal, is ready to reveal its principals. The lessees will assume charge of the plant May 1st. It is understood that the plant is to be rebuilt on modern coal gas lines, and that Mr. F. H. Shelton will have charge of the remodelling.

THE Fox River Valley Gas and Electric Company has taken over the property of the Appleton (Wis.) Gas Light and Fuel Company, and will assume possession thereof to-day. We believe the same concern owns the gas and electric plants of the Neenah and Menasha Gas and Electric Company, which latter were purchased with a view to closing them, the gas and electric supply to be furnished from Appleton as the central point of distribution. In that understanding many betterments will have to be made on the Appleton system.

THE South Jersey Gas Company has applied to the authorities for the right to supply gas in Pensauken township, N. J.

PRESIDENT QUILTY, of the San Jose (Cal.) Light and Power Company, reports that 1,300 gas ranges are in use in that city. He also declares that "hundreds more" will be placed this year.

ACCORDING to the annual report of Mr. William D. Lang, Supt. of Public Lamps, Boston, Mass., the following sorts and numbers of lamps were in use in the streets of that city January 10, 1901: Electric arcs, 3,416; Welsbach, 8,637; ordinary naphtha, 2,304; Welsbach naphtha, 33; Kitson, 16; electric incandescent, 28. Respecting the Welsbach lamps, as to efficiency, etc., the Superintendent says: "The Welsbach system of street lighting that was installed in June, 1899, in place of the old method of lighting the street gas lamps in this city, has proven entirely satisfactory to the Department." The total expenditure for public lamp lighting amounted to $728,107.09. The average price of the Welsbach lamps is $30 per annum.

ACCORDING to the ruling of the Appellate Court, of Illinois, the Peoples Gas Light and Coke Company, of Chicago, cannot be held and bound to supply gas for any purpose at a rate under the "minimum" one prescribed by the State law on the subject.

THE authorities of New Bedford (Mass.) seem to be still suffering from the desire to acquire and operate a lighting plant on municipal account. The latest "experts" retained by the city on such account seem to have been Mr. John S. Griggs, Jr., and his employer, Mr. Charles Henry Davis, both of New York. Mr. Davis did not go to New Bedford, but Mr. Griggs did. Mr. Davis is said to make "A specialty of erecting electric equipments of all kinds."

THE AMERICAN GAS LIGHT JOURNAL

A. M. CALLENDER & CO.,
PROPRIETORS.

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ELBERT P. CALLENDER,
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*Notification Respecting Advertising.*—Orders for new advertising, or for changes in standing advertisements, to insure attention in the issue following their reception, must be in hand any time of Wednesday.

MONDAY, APRIL 15, 1901.

## The Market for Gas Securities.

There was much trading in Consolidated Ga last week, and the transactions were all virtually done on a decidedly ascending scale as to prices. Wh n the Exchange closed for the Good Friday interregnum, Consolidated was quoted at 215¾ to 216; the closing to day (Friday) in it was 229¾ to 230. This advance may not be attributed to the closing out of short accounts or anything of that sort, nor in fact is it attributable to any move of a particularly speculative nature. The tremendous business that is being done by the Company in its gas and electric divisions, and the certain knowledge that it has millions worth of real estate and "other tangible assets," are sufficient reasons for the appreciating of the stock. No matter what is said to the contrary, the new plant of the Company will be erected at Astoria, L. I., and it will be the greatest gas factory in the world. Other city shares are strong, particularly "Standards." City gas bonds are very strong.

Brooklyn Union also moved up sharply, and there is good reason for asserting that its high level is still far from having been reached. Peoples, of Chicago, shows no particular change. Baltimore Consolidated is in good demand, quite some of the stock having been bought for New York account during the week. Cincinnati gas sold at 206½. The deal in that city, by virtue of which the Cincinnati Gas Light and Coke Company becomes the controller of the electric lighting and power supply, is up to the stockholders for ratification. Our item columns contain the essential details of the merger.

## Gas Stocks.

**Quotations by George W. Close, Broker and Dealer in Gas Stocks.**

16 WALL STREET, NEW YORK CITY.

APRIL 15.

☞ All communications will receive particular attention.
☞ The following quotations are based on the par value of $100 per share.

| *N. Y. City Companies.* | *Capital.* | *Par.* | *Bid.* | *Asked.* |
|---|---|---|---|---|
| Consolidated | $73,177,000 | 100 | 229¾ | 230 |
| Central Union, Bonds, 5's. | 3,000,000 | 1,000 | 106½ | 107 |
| Equitable Bonds, 6's | 1,000,000 | 1,000 | 105 | .. |
| " 1st Con. 5's | 2,300,000 | 1,000 | 120 | .. |
| Metropolitan Bonds | 658,000 | .. | 108 | 112 |
| Mutual | 3,500,000 | 100 | 294 | 298 |
| " Bonds | 1,500,000 | 1,000 | 100 | 102 |
| Municipal Bonds | 750,000 | .. | .. | .. |
| New Amsterdam Gas Co.. Bonds, 5's | 11,000,000 | 1,000 | 109 | 110 |
| Northern Union, Bonds, 5's. | 1,250,000 | 1,000 | 104 | 104¼ |
| New York and East River.. Bonds 1st 5's | 3,500,000 | 1,000 | 111 | 113 |
| " 1st Con. 5's | 1,500,000 | .. | 106 | 108 |
| Richmond Co., S. I. | 348,650 | 50 | 70 | .. |
| " Bonds | 100,000 | 1,000 | .. | .. |
| Standard | 5,000,000 | 100 | 132 | .. |
| Preferred | 5,000,000 | 100 | 152 | . |
| Bonds, 1st Mortgage, 5's | 1,500,000 | 1,000 | 116 | 114 |
| Yonkers | 299,650 | 500 | 130 | .. |
| *Out-of-Town Companies.* | | | | |
| Brooklyn Union | 15,000,000 | 100 | 218¾ | 219 |
| " " Bonds (5's) | 15 000,000 | 1,000 | 118 | 119 |
| Bay State | 50,000,000 | 50 | 1 | 1⅛ |
| " Income Bonds | 2,000,000 | 1,000 | .. | 75 |
| Binghamton Gas Works... | 450,000 | 100 | 25 | 26½ |
| " 1st Mtg. 5's | 509,000 | 1,000 | 92½ | 95 |
| Boston United Gas Co.— 1st Series S. F. Trust | 7,000,000 | 1,000 | 82 | 85 |
| 2d " " " | 3,000,000 | 1,000 | 47½ | 50 |
| Buffalo City Gas Co. | 5,500,000 | 100 | 9½ | 10½ |
| " " Bonds, 5's | 5,250,000 | 1,000 | 78½ | 80 |
| Capital, Sacramento | 500,000 | 50 | .. | 35 |
| Bonds (6's) | 150,000 | 1,000 | .. | |
| Central San Francisco | 2,000,000 | .. | 106 | 108 |
| Chicago Gas Co. Guaranteed Gold Bonds | 7,650,000 | 1,000 | 104 | 104¼ |
| Cincinnati G. & C. Co. | 8,500,000 | 100 | 199 | 199½ |
| Columbus (O.) Gas Co., 1st Mortgage Bonds | 1,500,000 | 1,000 | 106 | 107 |
| Columbus (O.) Gas Lt. & Heating Co | 1,682,750 | 100 | 60 | 65 |
| Preferred | 3,026,500 | 100 | 84 | 86 |
| Consumers, Jersey City Bonds | 600,000 | 1,000 | 102 | 103 |
| Consumers, Toronto | 1,700,000 | 50 | 215 | 216 |
| Consolidated. Baltimore | 11,000,000 | 100 | 60¾ | 60½ |
| Mortgage, 6's | 3,600,000 | .. | .. | 118 |
| Chesapeake, 1st 6's. | 1,000,000 | .. | .. | .. |
| Equitable, 1st 6's. | 910,000 | .. | .. | .. |
| Consolidated, 1st 5's | 1,490 000 | .. | .. | 112 |
| Consolidated Gas Co. of N.J. | 1,000,000 | 100 | 12½ | 14½ |
| " Con. Mtg. 5's | 880,000 | 1,000 | 81½ | 83 |
| Consolidated G. & E. Co.'s., Little Falls, N.Y. | 90,000 | 100 | .. | 100 |
| Bonds | 75,000 | .. | .. | 100 |
| Detroit City Gas Co | 4,825,500 | 50 | 88 | 89 |
| " Prior Lien 5's | 5,603,000 | 1,000 | 99½ | 100 |
| Detroit Gas Co., 5's | 381,000 | 1,000 | .. | 89 |
| " Inc. 5's | 16,000 | 100 | 94 | 94½ |
| Equitable Gas & Fuel Co., Chicago, Bonds | 2,000,000 | 1,000 | .. | 101 |
| Essex and Hudson Gas Co. | 6,500,000 | .. | 35 | 40 |
| Fort Wayne | 2,000,000 | .. | 35 | 41 |
| " Bonds | 2,000,000 | .. | 54 | 58 |
| Grand Rapids Gas Lt. Co.. | 1,000,000 | 50 | 103 | 105 |
| " 1st Mtg. 5's | 1,225,000 | 1,000 | .. | .. |
| Hartford | 750,000 | 25 | 240 | 250 |
| Hudson County Gas Co., of New Jersey | 10,500,000 | .. | 25 | .. |
| " Bonds, 5's | 10,500,000 | .. | 101 | 103 |
| Indianapolis | 2,000,000 | .. | 48 | 53 |
| " Bonds, 6's | 2 650,000 | .. | 94⅞ | 98 |
| Jackson Gas Co | 250,000 | 50 | 70 | 75 |
| " 1st Mtg. 5's | 290,000 | 1,000 | 101 | 102½ |
| Kansas City Gas Light Co., of Missouri | 5,000,000 | 100 | .. | 36 |
| Bonds, 1st 5's | 3,822,000 | 1,000 | 101½ | 103 |
| Laclede, St. Louis | 10,000,000 | 100 | 84¾ | 85 |
| Preferred | 2,500,000 | 100 | 98 | 100½ |
| Bonds | 10,000,000 | 1,000 | 108½ | 109 |
| Lafayette Gas Co., Ind. | 1,000,000 | 100 | 55 | 60 |
| Bonds | 1,000,000 | 1,000 | 56 | 58 |
| Louisville | 2,570,000 | 50 | 110 | 120 |
| Madison Gas & Elec. Co. | 400,000 | 100 | 64 | 67 |
| " 1st Mtg. 6's | 350,000 | 1,000 | 102½ | 108 |
| " 6 per cent. scrip, due 1910 | 100,000 | 25 | 87 | 89 |
| Montreal, Canada | 2,000,000 | 100 | 182 | 184¾ |
| Newark, N. J., Con. Gas Co | 6,000,000 | .. | .. | 55 |
| Bonds, 6's | 4,600,000 | .. | .. | 103 |
| New Haven | 1,000,000 | 25 | 280 | 300 |
| Nashville Gas Lt. Co. | 1,000,000 | 50 | 110 | .. |
| Oakland, Cal. | 2,000,000 | .. | 46 | 47 |
| " Bonds | 750,000 | .. | .. | .. |
| Peoples G. L. & Coke Co., of Chicago | 25,000,000 | 100 | 104¾ | 106½ |
| Peoples Gas Lt. & Coke Co., Chicago, 1st Mortgage | 20,100,000 | 1,000 | .. | .. |
| 2d " | 2,500,000 | 1,000 | 104 | |
| Rochester Gas & Elec. Co.. | 2,150,000 | 50 | 88 | .. |
| Preferred | 2,150,000 | 50 | 118 | .. |
| Consolidated 5's | 2,000,000 | .. | 87½ | 90 |
| San Francisco, Cal. | 10,000,000 | 100 | 47¼ | 47⅛ |
| St. Paul Gas Light Co. | 1,500,000 | 100 | 45 | 47 |
| 1st Mortgage 6's. | 650,000 | 1,000 | 82 | 85 |
| Extension, 6's | 600,000 | 1,000 | .. | .. |
| General Mortgage, 5's.. | 2,465,000 | 1,000 | 88 | 90½ |
| St. Joseph Gas Co | 1,000,000 | 100 | 36 | 39 |
| " 1st Mtg. 5's | 751,000 | 1,000 | 96½ | 98 |
| Syracuse, N. Y. | 1,750,000 | 100 | 18½ | 20 |
| Bonds | 1,612 000 | 1,000 | 88½ | 93 |
| Washington, D. C | 2,600,000 | 20 | 307½ | 312½ |
| First mortgage 6's | 600,000 | .. | .. | .. |
| Western, Milwaukee | 4,000,000 | 100 | 100 | 101½ |
| Bonds, 5's | 4,000,000 | .. | 106½ | 107½ |
| Wilmington, Del. | 600,000 | 50 | 200 | 201 |

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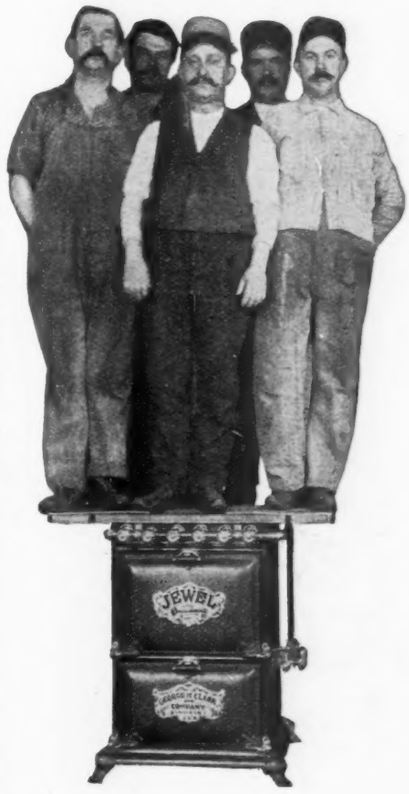


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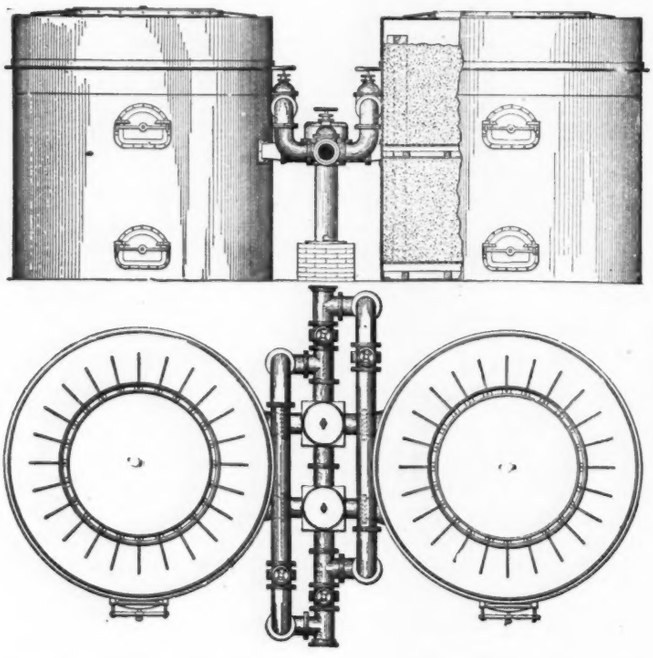

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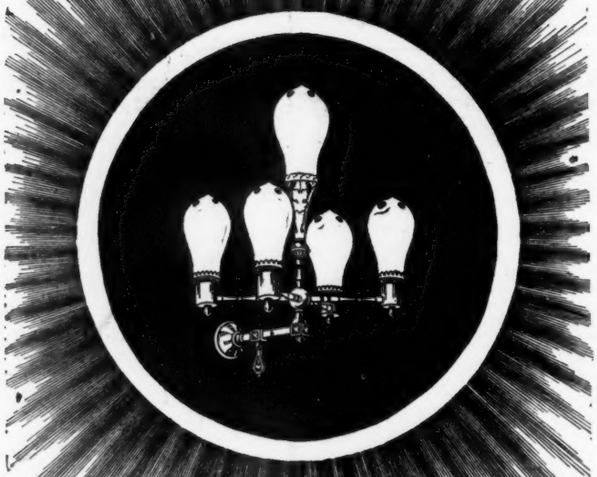

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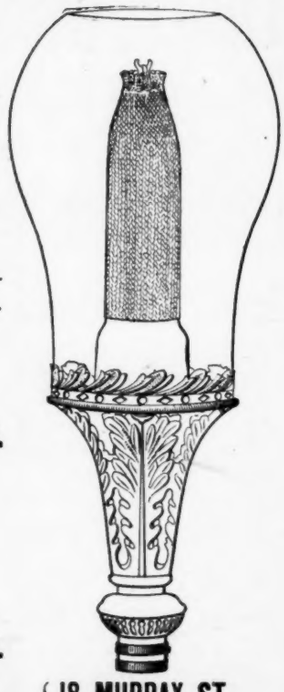

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| " | 1 | " | 1 | " | 35 | " |
| " | 2 | " | 2 | cubic feet, | 70 | " |
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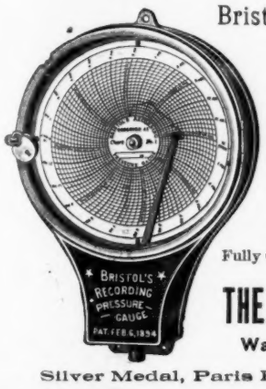


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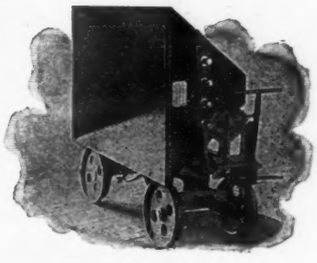
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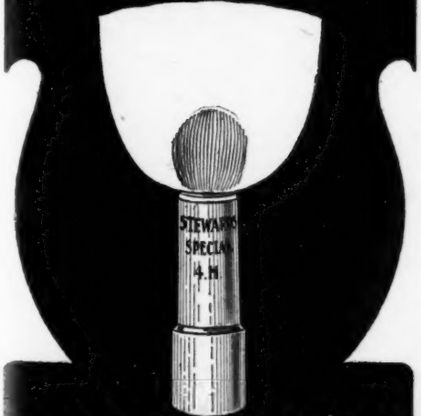


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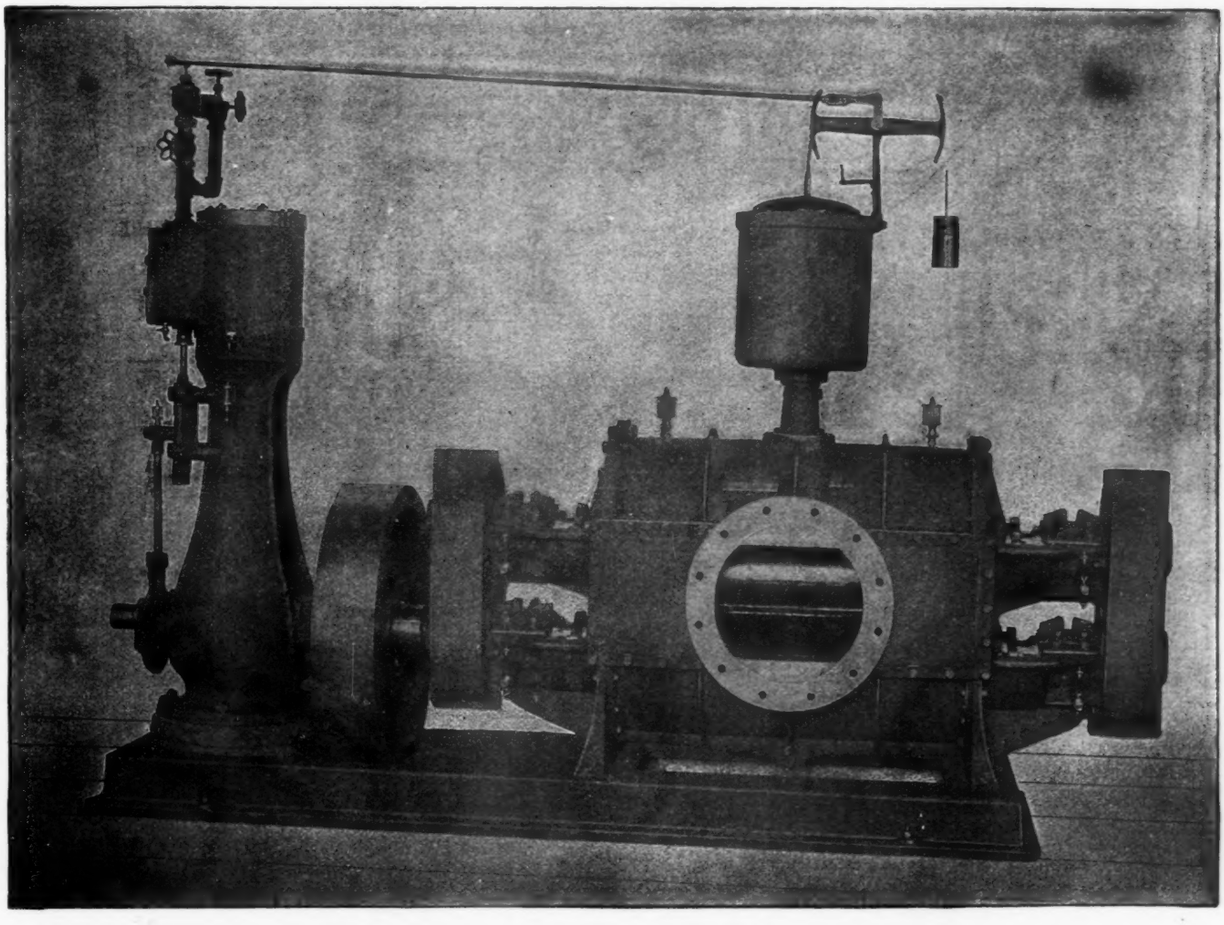
Always in the lead. Always anticipating the requirements of the trade. Our new Exhauster meets all demands of modern gas making and overcomes all difficulties heretofore experienced.

**OUR GAS GOVERNOR IS MAKING FRIENDS EVERY DAY.**



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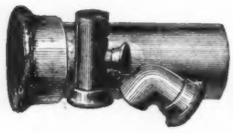

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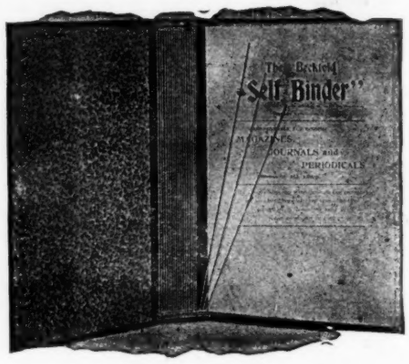


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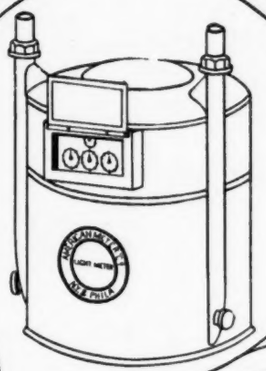

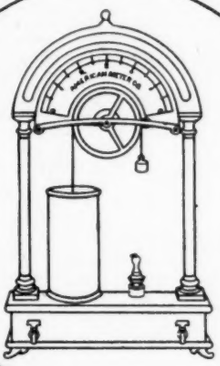

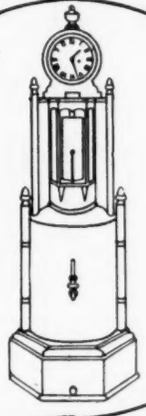

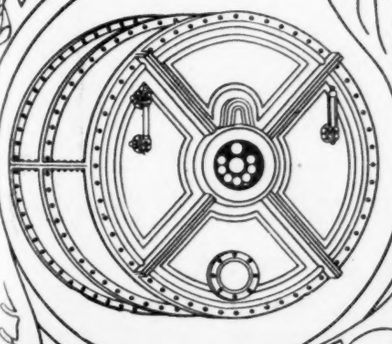

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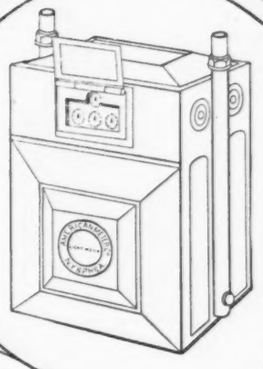

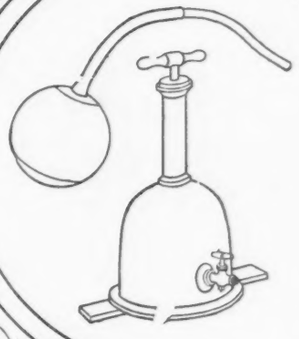

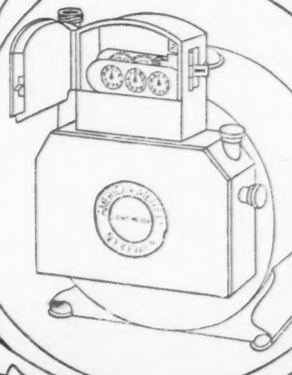

## PUBLIC LIGHTING TABLE.

### MAY, 1901.

| Day of Week. | Date. | Table No. 1. Following the Moon. Light. | Table No. 1. Extinguish. | Table No. 2. New York City. All Night Lighting. Light. | Table No. 2. Extinguish. |
|---|---|---|---|---|---|
| | | | | P.M. | A.M. |
| Wed. | 1 | 3.10 AM | 4.00 AM | 6.45 | 4.00 |
| Thu. | 2 | No L. | No L. | 6.45 | 4.00 |
| Fri. | 3 | No L. FM | No L. | 6.45 | 4.00 |
| Sat. | 4 | No L. | No L. | 6.45 | 4.00 |
| Sun. | 5 | 7.30 PM | 9.50 PM | 6.45 | 4.00 |
| Mon. | 6 | 7.30 | 10.40 | 6.45 | 4.00 |
| Tue. | 7 | 7.30 | 11.30 | 6.55 | 3.40 |
| Wed. | 8 | 7.30 | 12.10 AM | 6.55 | 3.40 |
| Thu. | 9 | 7.30 | 12.50 | 6.55 | 3.40 |
| Fri. | 10 | 7.30 | 1.30 | 6.55 | 3.40 |
| Sat. | 11 | 7.30 LQ | 2.00 | 6.55 | 3.40 |
| Sun. | 12 | 7.40 | 2.40 | 6.55 | 3.40 |
| Mon. | 13 | 7.40 | 3.10 | 6.55 | 3.40 |
| Tue. | 14 | 7.40 | 3.40 | 7.00 | 3.30 |
| Wed. | 15 | 7.40 | 3.40 | 7.00 | 3.30 |
| Thu. | 16 | 7.40 | 3.40 | 7.00 | 3.30 |
| Fri. | 17 | 7.40 NM | 3.40 | 7.00 | 3.30 |
| Sat. | 18 | 7.40 | 3.40 | 7.00 | 3.30 |
| Sun. | 19 | 7.40 | 3.40 | 7.00 | 3.30 |
| Mon. | 20 | 7.40 | 3.40 | 7.00 | 3.30 |
| Tue. | 21 | 7.40 | 3.40 | 7.10 | 3.15 |
| Wed. | 22 | 10.20 | 3.40 | 7.10 | 3.15 |
| Thu. | 23 | 10.50 | 3.40 | 7.10 | 3.15 |
| Fri. | 24 | 11.20 FQ | 3.40 | 7.10 | 3.15 |
| Sat. | 25 | 11.50 | 3.40 | 7.10 | 3.15 |
| Sun. | 26 | 12.20 AM | 3.30 | 7.10 | 3.15 |
| Mon. | 27 | 12.50 | 3.30 | 7.10 | 3.15 |
| Tue. | 28 | 1.10 | 3.30 | 7.15 | 3.15 |
| Wed. | 29 | 1.50 | 3.30 | 7.15 | 3.15 |
| Thu. | 30 | 2.20 | 3.30 | 7.15 | 3.15 |
| Fri. | 31 | No L. | No L. | 7.15 | 3.15 |

## TOTAL HOURS LIGHTING DURING 1901.

| By Table No. 1. | Hrs.Min. | By Table No. 2. | Hrs.Min. |
|---|---|---|---|
| January | 220.10 | January | 423.20 |
| February | 192.30 | February | 355.25 |
| March | 180.00 | March | 355.35 |
| April | 158.30 | April | 298.50 |
| May | 140.40 | May | 264.50 |
| June | 135.40 | June | 234.25 |
| July | 138.00 | July | 243.45 |
| August | 156.20 | August | 280.25 |
| September | 174.40 | September | 321.15 |
| October | 202.30 | October | 374.30 |
| November | 220.40 | November | 401.40 |
| December | 241.30 | December | 433.45 |
| Total, yr. | 2161.10 | Total, yr. | 3987.45 |

NEW YORK, 33 Nassau St. PHILADELPHIA, Broad and Arch Sts. CHICAGO, 54 Lake St.

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.... OF AMERICA ....

No. 36.

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Uniformly SUCCESSFUL in seventy-five Cities and Towns.

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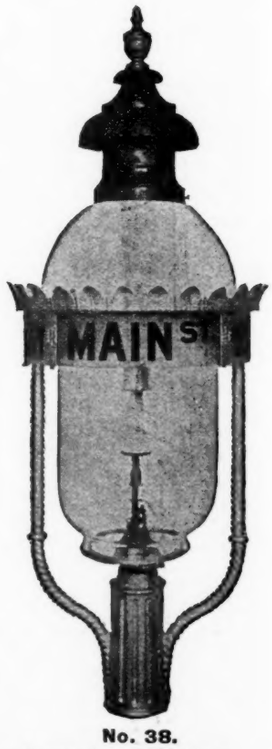
Where there are no gas mains we can furnish an equally good light by our SELF-GENERATING NAPHTHA WELSBACH BURNER, and thereby supply a uniform light in all localities.

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GAS LIGHT

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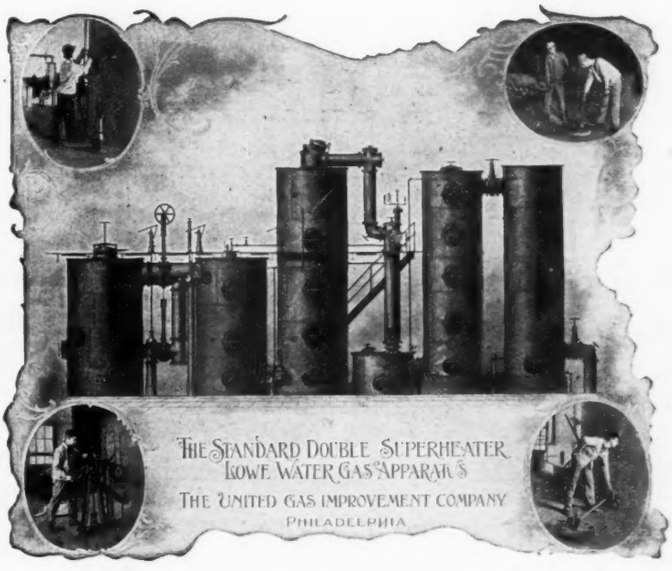
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LOWE WATER GAS APPARATUS
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Standard Fire Brick and Gas Retorts.

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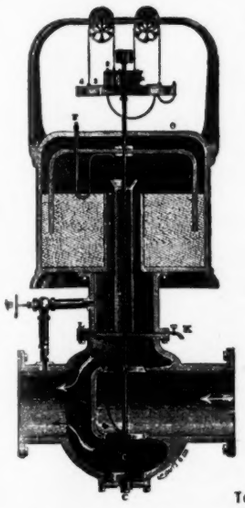

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FOR GAS PURIFICATION.

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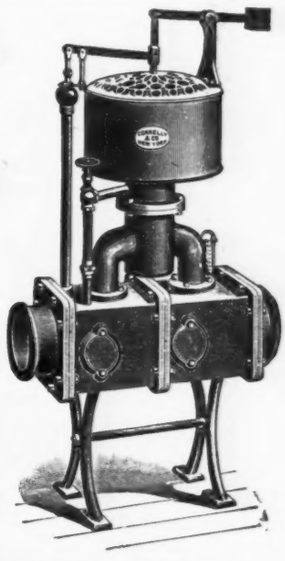

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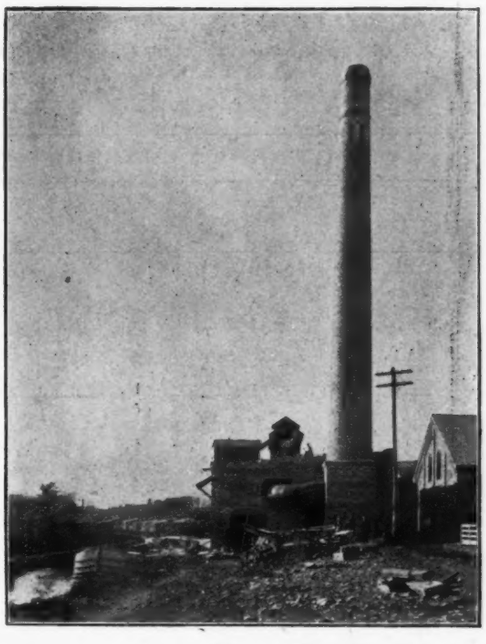

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Carefully prepared.
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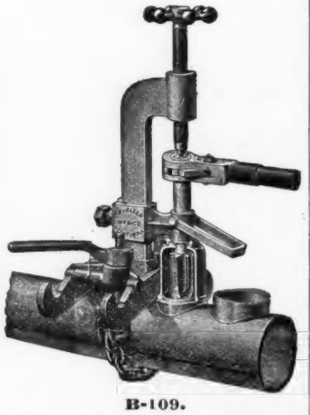

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Fastened at One End Only, expand and contract without Strain, Averting any Possibility of Leakage.

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*Stacks, Tanks and Miscellaneous Metal Work.*

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Strong, Simple, Durable. Will Crush any Size Desired.

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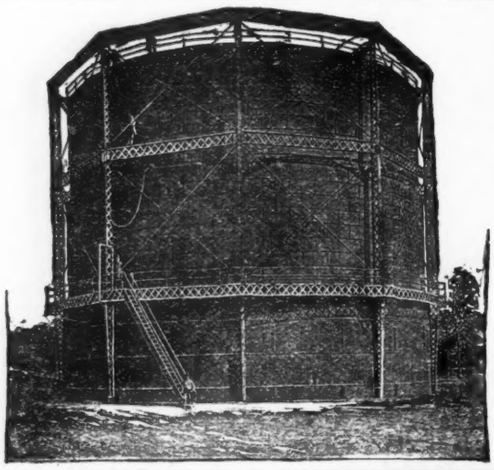

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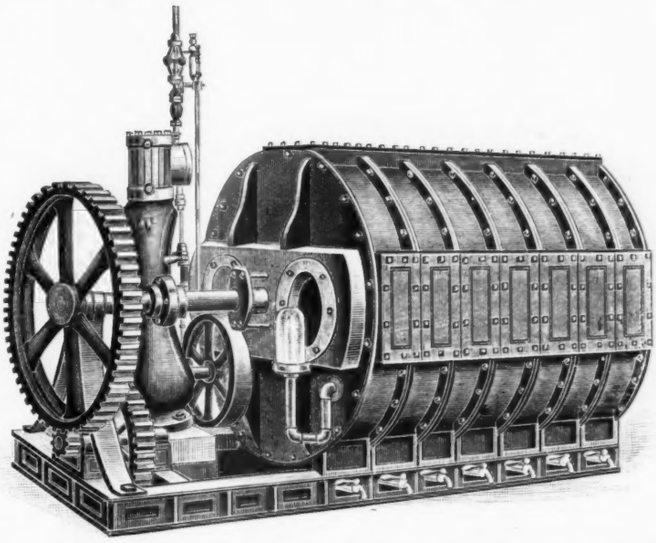

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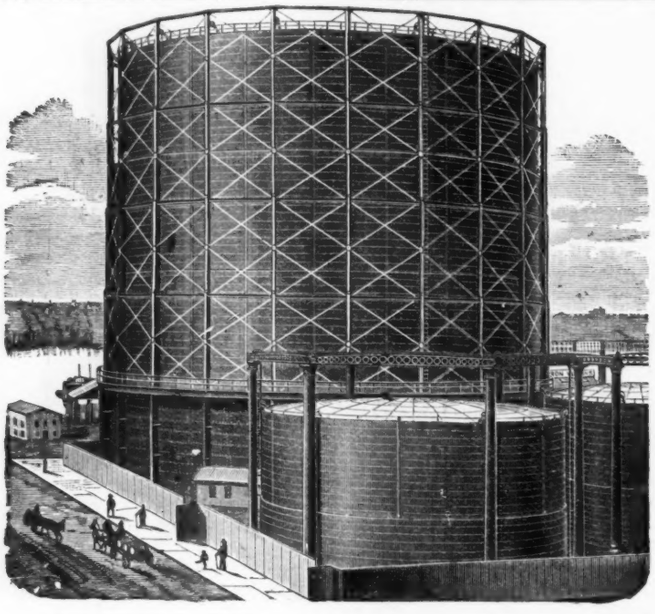

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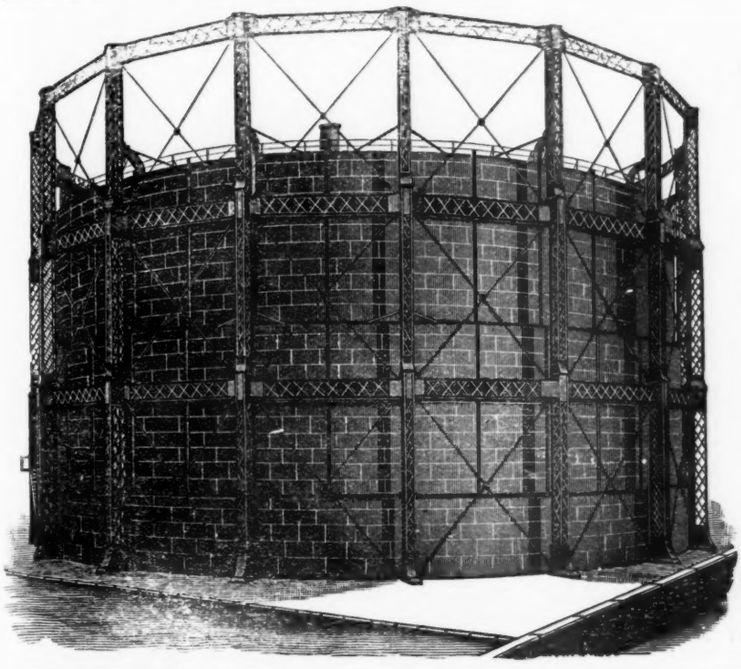

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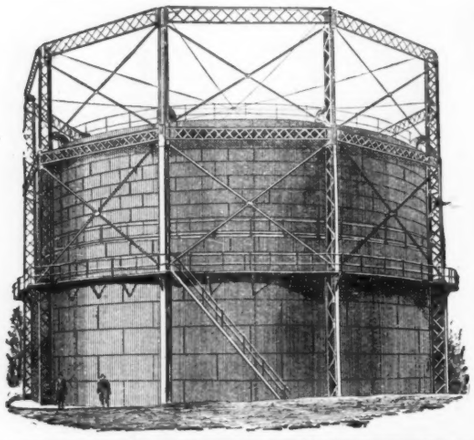

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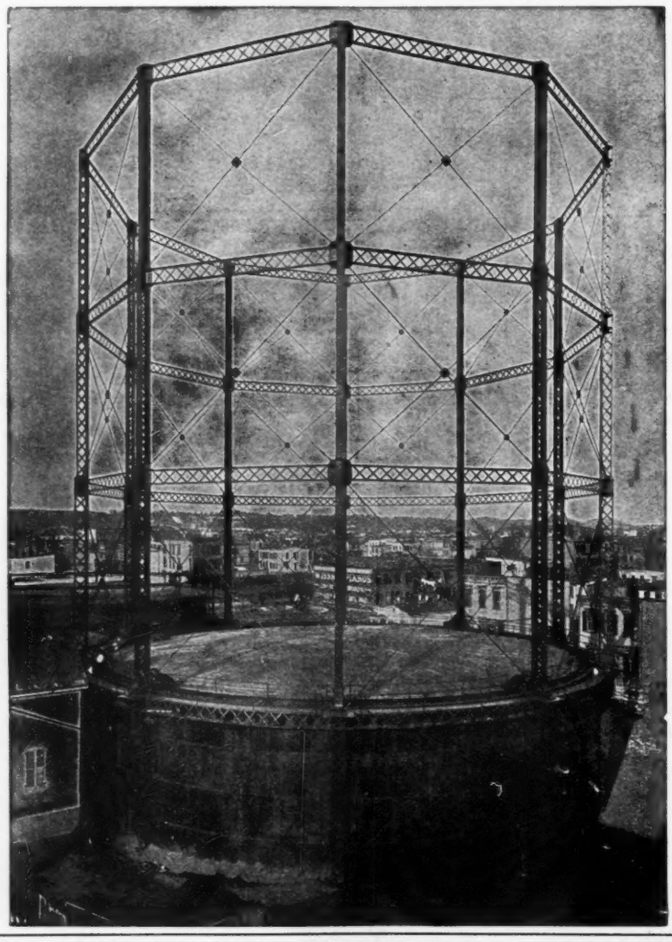

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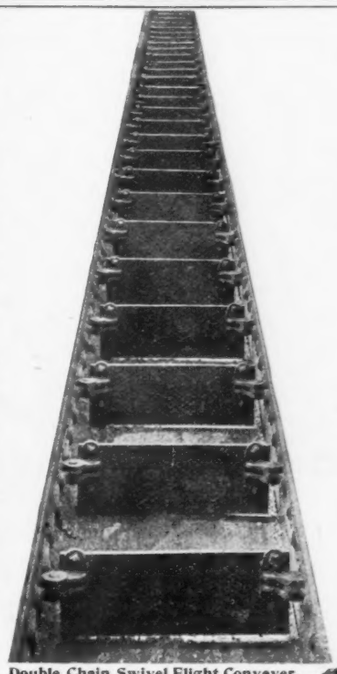

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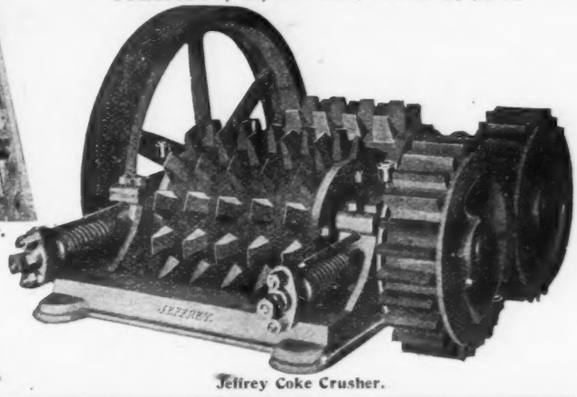

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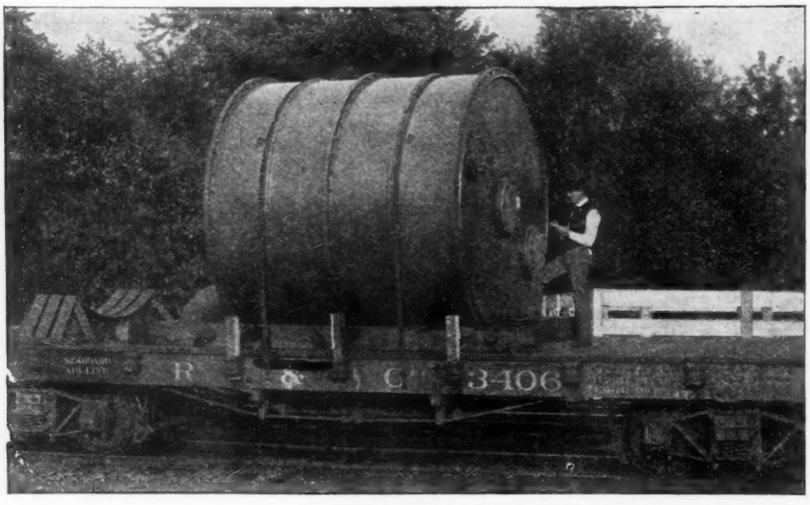


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